

Vol. XVIII.

No. 8.

The
O. N. G.
Review

The title is rendered in a highly decorative, calligraphic style. The word 'The' is at the top in a simple gold font. Below it, 'O. N. G.' is written in large, gold letters with intricate green flourishes and scrollwork. The word 'Review' is at the bottom in a gold font with a long, sweeping underline that extends to the left and then curves back under the 'Review'.

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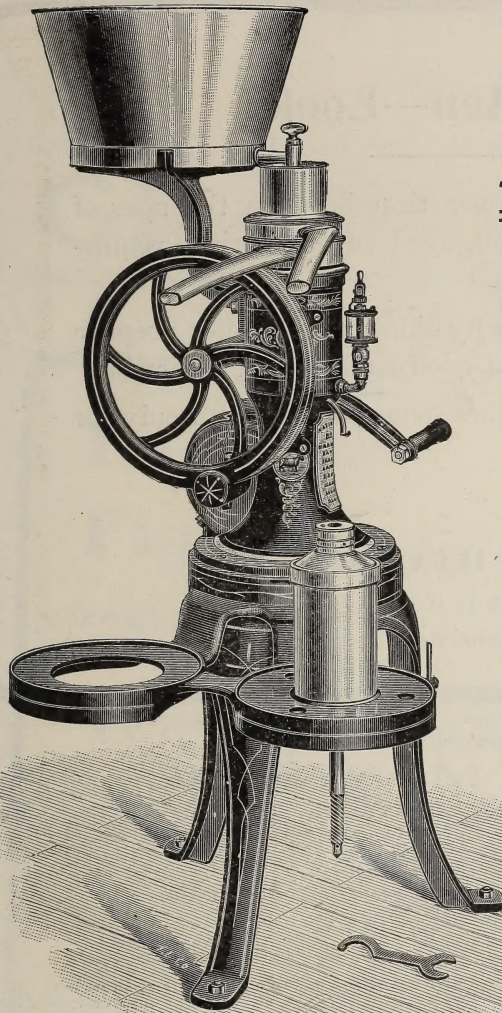
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	Area in crop	Average yield. to acre	Total yield, bushels.
Wheat.....	4,019,000 acres	at 21.6	86,810,400
Oats.....	1,423,000 acres	at 46.6	66,311,800
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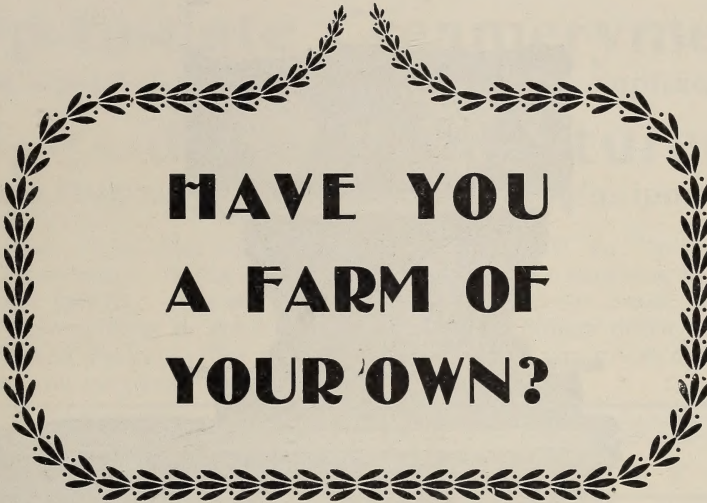
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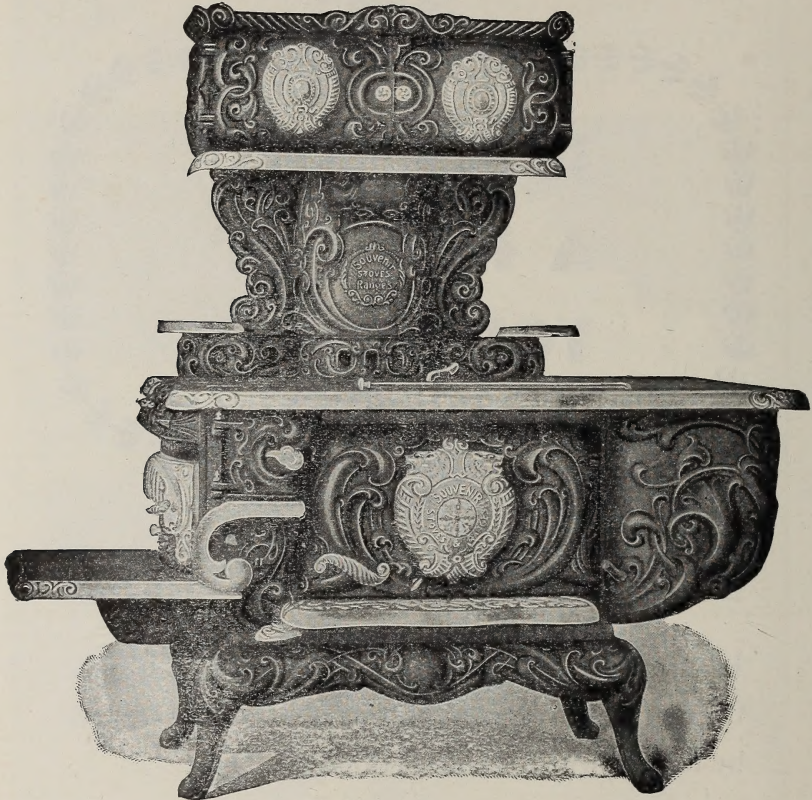
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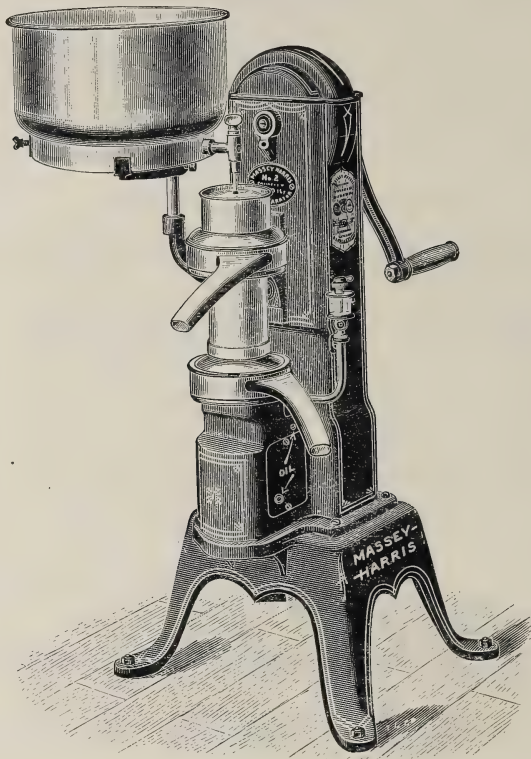
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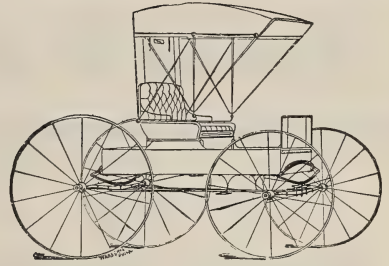
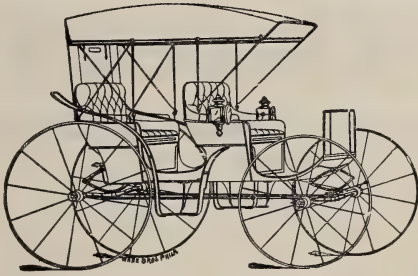


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 CORRECT MECHANICAL CONSTRUCTION
 HAS WAIST HIGH SUPPLY CAN
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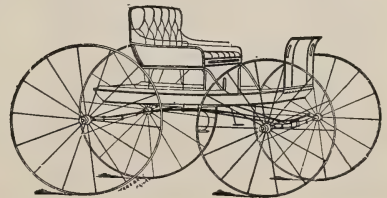
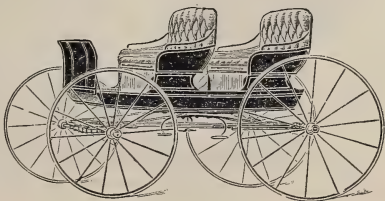
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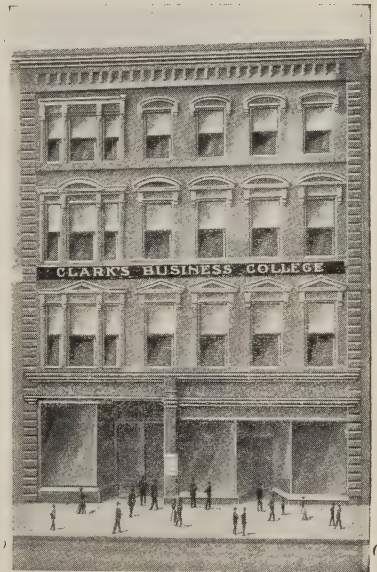
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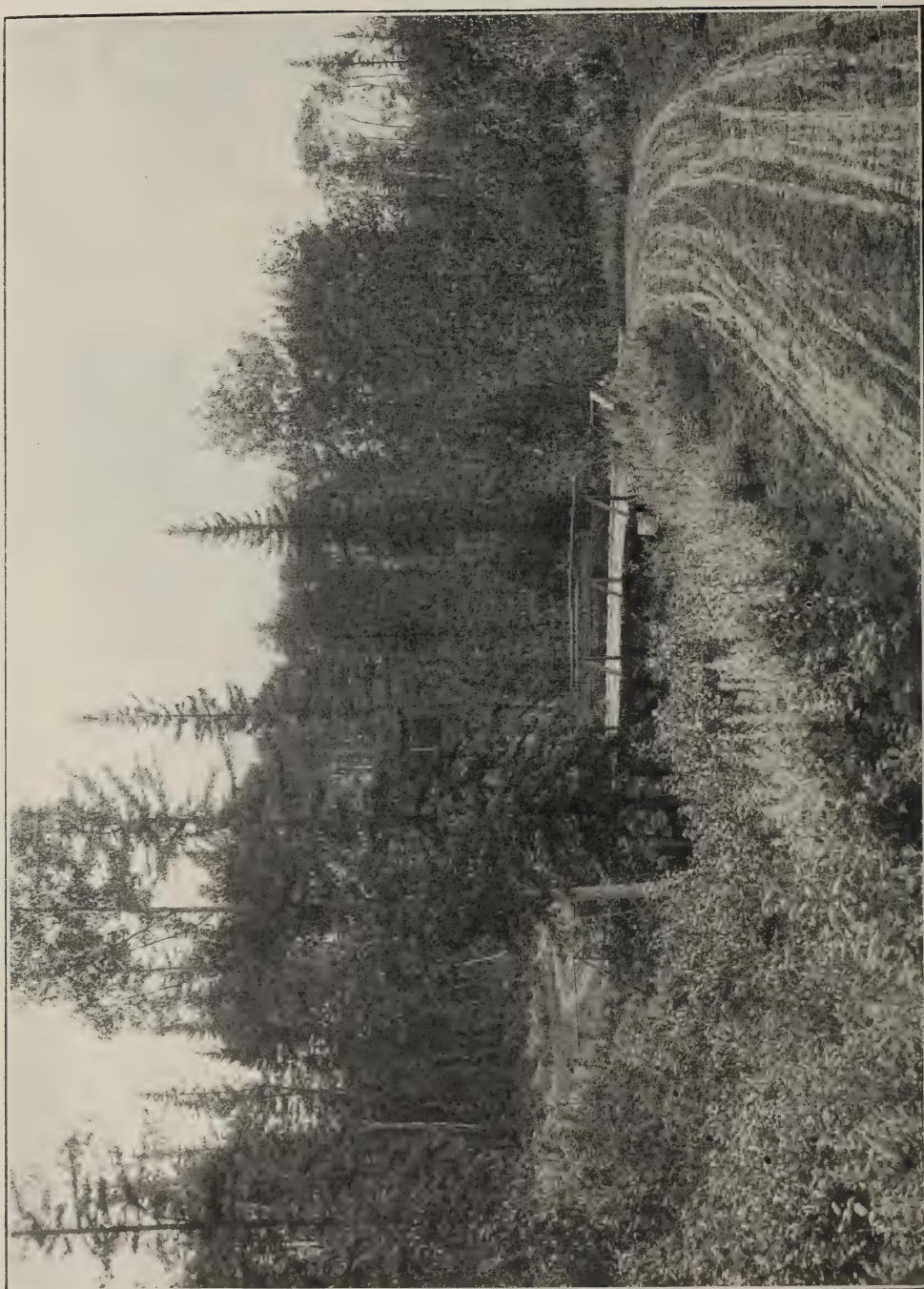
SONG OF THE PLAINS

No harp have I for the singing, nor fingers fashioned for skill,
Nor ever shall words express it, the song that is in my heart.
A saga, swept from the distance, horizons beyond the hill,
Singing of life and endurance, and bidding me bear my part.

For this is song, as I sing it, the song that I love the best,
The steady tramp in the furrow, the grind of the gleaming steel,
An anthem sung to the noonday, a chant of the open west,
Echoing deep in my spirit, to gladden and help and heal.

And this is life, as I read it, and life in its fairest form,
To breathe the wind on the ranges, the scent of the upturned sod.
To strive and strive and be thankful, to weather the shine and storm,
Penciling over the prairies the destiny planned by God.

And no reward do I ask for, save only to work and wait,
To praise the God of my fathers, to labor beneath the sky,
To dwell alone in his greatness, to strike and to follow straight,
Silent and strong and contented—the limitless plains and I.



ON THE COOKING LAKE TRAIL.

The O. A. C. Review

Published Monthly during the College Year
by the Students of the Ontario Agricultural College, Guelph, Canada.

THE DIGNITY OF A CALLING IS ITS UTILITY

VOL. XVIII.

ONTARIO AGRICULTURAL COLLEGE
MAY, 1906.

No. 8

The Lure of the Great Lone Land.

"Beatus ille, qui procul negotiis,
Ut prisca gens mortalium,
Paterna rura bobus exercet suis,
Solutus omni fenore."

Much has been said of the earth-locked treasures of the West, much withal of the dreary sameness of life in the great lone land, little in sooth of its ineffable charm. These leaves from Sandy McTaggart's diary may in part account for the lure of the Western plains.

Sandy had been reared in the smoky purlieus of workshop and factory, but one day the "Wanderlust" of his Norse forebears awoke in his blood and he must e'en leave homeland behind and make the world his pillow. What Emerson calls the "Anglo-Saxon's land hunger" may have had its share in shaping his determination, for the homesteads of Western Canada have ever been well advertised. Arrived in Manitoba, he very soon learned how little he knew of matters agricultural. Nay, his first experience of hiring out had belike been his last, but for his native dourness. However, it is not

our purpose to follow the hired man's daily round, but passing over that season of chequered light and shade, arrive at the day when, leaving behind the fat plains of Manitoba, Sandy betook himself to the rolling prairies of Assiniboia.

Taking a seat in the tri-weekly Moose Mountain "mixed," he was whirled along at the respectable rate of twelve miles an hour to the frontier town of Arcola. This "mixed," be it noted, consisted of cars of settlers' effects, with one passenger coach tacked on behind. At the "towns" along the line, the entire population would turn out to welcome this link between East and West. Arcola boasted no less than 600 citizens, for it had long been the railway terminus, and as such, the distributing point for some 50 miles around. Everywhere were the effects of the present boom in evidence, gear and plenishing piled higgledy-piggledy around the depot, kine a-milking in stalled settlers' cars, tents sheltering the overflow population.

Foregathering with two stalwart Aberdonians, Sandy and his compat-

riots set out next morning on a "land hunt." Night found them in a French settlement, whence next morning in a farmer's wagon, they proceeded to examine a whole township of lands open to settlement. The fierce August sun and myriad swarms of flying ants attended them on their bootless quest, for the land was nothing but sand, as the scanty vegetation made all too evident. This was enough for the Aberdonians, but twelve miles westward lay

copiously expectorating humanity, but where the guardian of His Majesty's mails? Rumor had it he was in Tam o'Shanter's happy state.

"Kings may be blessed, but Tam was glorious,
O'er a' the ills of life victorious."

He could hardly have been celebrating on the strength of his munificent salary.

By and by the crowd grew impatient



BREAKING.

the fertile plains of New Hope. So stopping over night with another Frenchman, whose separator and tidy herd of milch cows betokened his faith in dairy husbandry, Sandy next morning fared westward, till he happened in with a settler returning from the bush.

New Hope was but two stores and a smithy laid on skids, with the white schoolhouse a mile away. That day the weekly mail arrived and night found the store crowded with excited,

and one old-timer in greasy overalls and slouch hat, a red and white checked handkerchief, knotted round his bronzed neck, jumped over the counter and proceeded to sort the mail, to his own satisfaction, doubtless. But all seemed pleased at the result, from Doc. McEvoy, fresh from 'Toba College, who found his professional duties but light, to the hardened horsedealer and bum-in-general.

That afternoon Sandy was piloted

around in a road cart by a farmer, who had been lucky enough to locate right up against the town. Some 30 miles were covered that afternoon and all kinds of land examined—light land, sloughy land, stony land. The last might doubtless compare favorably with the boulder till of Puslinch, but to the Western farmer it is Anathema Marantha. At long last they reached a fertile strath sloping to the shores of a lake, on whose pellucid wave myriad ducks disported in glad security. A poplar pole, crowning a survey mound, showed the S. W. corner of the homestead and half way up the opposing range of hills lay the N. W. corner. Running east, the quarter section took in some 20 acres of Lake Minnetonka.

Sandy lost no time in reaching Arcola and fling on the choice parcel of land. But winter was coming on—a winter long to be remembered in the annals of the Nor'-West—and there was no use moving on to the homestead till the following spring.

When well on in the following April, Sandy once more reached New Hope, snow wreaths blocked the streets—in these few months a town had sprung up. A neat plan of the town hung in the mayor's office in which, by the way, was transacted the business of a feed store, a post office, a real estate agency and an implement agency. The snow wreaths of the past severe winter were slowly melting and rubber knee-boots were "de rigueur," for Railway Avenue had last year borne a crop of wheat. And where is Minnedosa Avenue? It must be yonder slough, on the far side of which the inevitable Chinaman is hanging out his washing. Like the Mississippi town in "Martin Chuzzlewit," New Hope has still open-

ings for an architect. But along Main Street hotel and church and store are springing up amain, here the editor is setting type for this week's "Star," and yonder lies the railway track, not a bend in all the 100 miles to Regina—the longest straight line in the world.

It is curious how largely urban is the population of Western Canada, relying wholly on agriculture though it be. Everybody is buying and selling land, but few are living on the land.

Sandy's base of operations was now Arcola. From there his modest outfit had to be teamed some 50 miles, where trails there were none. Whiles, to escape the treacherous alkali spots where the wheels would sink axle deep, he would climb the railway embankment. Travelling thus in fancied security, of a sudden a yawning chasm would confront him, where a culvert was in process of completion. Lucky then if he could turn, without breaking the wagon tongue, or having to unhitch and draw the wagon backwards, to where the track ran level with the prairie.

But at long last the implements and the feed oats and the lumber and the frying pan (that most useful of culinary utensils), and all the household goods lay 'neath the warm April sunshine, flooding the braes of Minnetonka. And a strange land it seemed! The rolling plains, whose verdant sward was fast effacing the havoc wrought by last October's fire, were thickly strewn with the blooms of the crocus anemone; the poplar-fringed ponds alive with ducks and myriad geese seeking with shrill outcry the Northland lakes.

But the present had its problems. Some shelter for the horses must be rigged up against the wind, blowing

without let or hindrance from the Hudsonian tundras. Across the flooded creek lay the wooded slopes of the Moose Mountains, in Arcola was lumber to be bought, but both these sources of building material were at present out of the question. To build a sod stable were but a tedious operation, but the West is fertile in expedients. From one neighbor were borrowed eight 6-inch posts from another some poplar poles. With these a framework was run up, banked on the outside with manure. Overhead was spread a tent and the

like all the sturdy sons of the Ottawa settlements, had been born with an axe in his hands, so one July morn Mac and he forded the creek and made for the foot-hills 25 miles away. Space would not permit to dwell on the labors of that day, the dense underbrush, the flies, the lack of water. By 10 o'clock at night they essayed the homeward trail. In and out and up and down twisted the stump-strewn trail, nor was it even level from side to side. Plunging down a breakneck gully in the pitchy darkness, one could but hold the



HARVEST ON THE PRAIRIES.

four-horse team could bid defiance to all the gusts of Aeolus.

Then breaking went on apace, for a goodly strip must be turned over before the sod gets overdry. Then the June rains come to rot the fresh-turned sod. The little store of prairie hay is now exhausted, and the team must needs "rustle" for a livelihood on the short, nutritious bunch grass.

Now comes a brief breathing spell. The creek can now be forded and the bush trails ventured on. Sandy's nearest neighbor (just two miles distant),

lines tight and let the horses pick their way between the stumps. The moon rose as they left the bush behind and by her light they pushed ahead till midnight.

A quiet pipe beside the cherry blaze of the camp fire, to the heartsome singing of the tea kettle, while the horses graze contentedly and the fire flies come and go; then rolled in their blankets, the drowsy god o'ercomes them. As the mists clear at the dawning and once again they take the trail, sharp and clear against the Western

sky are seen the New Hope elevators, but New Hope lies full many a league beyond and soon these so substantial-seeming towers' vanish. An old Indian Reserve is now traversed—a fair land in sooth, with lake and shaggy wood, but rough and broken. They say an agent sold it by taking the prospective purchaser over some adjacent land. The latter was an American, *dis gratias!*

As Sunday came round, Sandy would overtake Mac and the wife driving to church in an old lumber wagon. By and bye they pick up two Americans, who have built their shack on the line between their respective quarters, then a German Frau, who still makes tea in the samovar brought from far-off Russia. Finally they pull up at the low-roofed sod shanty of still another American. The pigs and calves are having a great time in the patch of oats, but *Gid* doesn't pretend to be farming. Can he not show some dozen certificates from the Angus Breeders' Association and is there not many a little horse deal comes his way? And here he is in his Sunday blacks—how many horse deals have they witnessed? If he would but keep on his work-a-day clothes; but no, custom decrees the rusty blacks, short-sleeved, baggy-kneed, frayed and darned and all. The lumber wagon is now crowded with *Gid's* young hopefuls. Spring seats there are none and Mac's team have a predilection for all the stones and badger holes along the trail, but these are details.

The days are creeping in apace and New Hope resolves on a Fall Fair. All the world and his wife attend. Where else could be found such a heterogeneous holiday crowd? From Billy McNaughton "farming" his 1,000 acres to the Yankee parson holding down his quarter section; from the Oxford graduate portering in the "King Edward" to the Baronet's son choring round the

livery barn, all are keenly alive to the importance of the occasion. It may be the programme is somewhat ambitious: that prizes are offered for sheep with never a sheep this side of Regina; that the hogs are of no particular breeding: that the milch cows would come out poorly in a dairy test. But does not the vegetable exhibit belie the charge of "low-pressure" farming, when we see twelve potatoes weighing 26 pounds? And your Westerner is a true lover of horse-flesh, as the interest in this section betokens.

'Twere hard to do justice to the beauty of the Indian summer. When not a cloud beflecks the caerulean vault of heaven and the wind blows snell from the Northland Lakes and the tang of autumn frosts is in the air, then, in very sooth, does the blood course joyous through the veins, as 'twere celestial ichor. What though the dreaded hail have laid the golden harvest low! Our Thanksgiving dinner can still be furnished forth. Is not the grey goose even now winging its way to Southern climes, while the 10-bore rusts ayont the ingle nook?

And the winter, too, has its charm. True there is an occasional blizzard, when we can appreciate the ancients' conception of Scythia as a land of Cimmerian gloom, where the air was full of feathers. But zero temperatures are unfelt in the brilliant winter sunshine, do indeed but render bush work more enjoyable.

"*Virginibus puerisque cano,*" to the young in heart the West has an irresistible charm. What tho' the farmer's path be not along the shores of *Pactolus!* With Horace, who has limned in such pleasing hues the joys of country life:

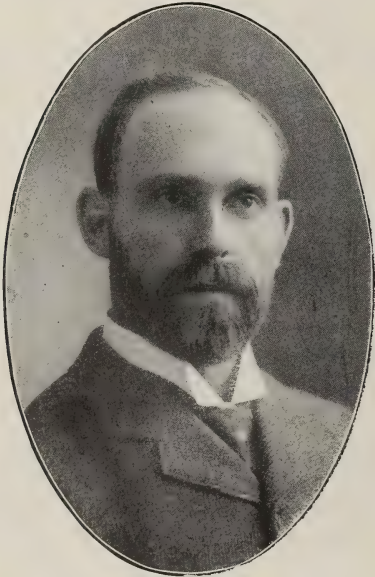
"*Cur valle permutem Sabina
Divitias operosiores?*"

John Craig, '06.

Agricultural Education in the West.

By GEORGE HARCOURT, B.S.A.,
(Deputy-Minister of Agriculture for Alberta.)

IT is a strange thing that when one uses the term "west" or "north-west," reference is made only to Manitoba or to the two new Provinces, Saskatchewan and Alberta, which were formerly the Northwest Territories, and



GEORGE HARCOURT, B. S. A.

not to British Columbia, which has always had a distinct status of its own. The prairie country lying to the east of the Rocky Mountains has a distinctiveness all its own, and nowhere else in Canada is there such an area of land possessing characteristics in anyway like it. Its undulating or dead level stretches make a delightful land, and possess a charm which at first fascinates, then enthralls; for it is a well known fact that a summer spent on the prairies fills the visitor with such a love for them that there is no rest

until his permanent abode is where he can enjoy the ozone of the prairie breezes.

The prairies have been populated by the most enterprising citizens of the older Provinces, and the Old Country. One finds careful, intelligent farmers who thoroughly understand the best systems of farming in their native land situated side by side with men from mercantile pursuits or the halls of learning. Strange to say all are doing well—the farmer, the hind from the old land or the college graduate. This is largely because the methods of culture suitable in other places are not equally applicable here. All had to begin anew, and many were the disappointments until the true method of handling the prairie soils was found. The small amount of rainfall demands special treatment of the soil which it took years to learn. The man ignorant of what was supposed to be the correct way to farm was just as liable in his ignorance to strike it right as the best farmer. In fact the better farmer had so much to unlearn that it was sometimes more difficult for him to learn than the green beginner.

By years of disappointing experience and experiment the correct methods of handling the soil so as to conserve the rainfall were discovered and made known through the agricultural papers and at Institute meetings. The Experimental Farms at Brandon and Indian Head have done their share in solving the problems before the farmer. The addresses of Messrs. S. A. Bedford, of

the Brandon Farm, and Angus Mackay, of the Indian Head Farm, at Institute meetings have been a most potent factor in setting the farmers of the country on their feet so to speak, and the good that these farms have done outweighs their cost many hundreds of times.

Next to the Experimental Farms and Farmers' Institutes, the greatest factor in disseminating agricultural knowledge has been, and is still to-day, the agricultural press—the Farmers' Advocate and the Nor'West Farmer, both of Winnipeg, and the last year, the Farm and Ranch Review of Calgary. The editors of these papers have scattered broadcast the good seed sown at Institutes and conventions, as well as that gleaned personally.

At the present time agricultural educational work in Manitoba seems to be concentrating itself in an Agricultural College, and in the stock judging schools held by the Live Stock Associations, under the able management of its energetic secretary, Mr. G. H. Greig. The work of these associations has been of the greatest value in drawing the attention of farmers to the necessity of combining stock raising with the one-sided plan of growing all wheat. Time was when creameries were dotted all over the Province, but the craze for wheat growing caused a great decline in the dairy industry, and in his hurry to get rich the farmer forgot the cow that had tided him over the hard years, but it is pleasing to note that the pendulum is beginning to swing back again. The dry falls, so favorable for threshing wheat, are also favorable for the preservation of weed seeds, so that they can grow in the spring. Plowing them down only preserves them; therefore weeds are the biggest enemies farmers have to fight, and in successfully combating them farmers will have

to quit growing so much grain, give more attention to stock and get their land in shape to grow fodder crops.

The Department of Agriculture in the Territories was organized in 1898, and from the first followed an aggressive policy along educational lines, and especially took active steps toward the improvement of the live stock industry. Institute meetings were held in all parts of the Territories and a system of co-operative experiments, adopted especially in connection with agricultural societies. Much good work was done along the line of educating farmers as to the best means of shipping their grain in car lots in order to obtain the best prices. This programme of education, conducted under the auspices of the Grain Growers' Association, has had most remarkable results, and been beneficial to the farmer in a great many ways. With the division into Provinces and with more money for educational purposes, the good work begun by the Territories should be carried on more effectively than ever before. The Province of Saskatchewan has already appointed a Superintendent of Institutes in the person of James Murray, B.S.A., who was formerly with the Seed Department of the Dominion Government, with headquarters at Winnipeg. The dairy interests are under the supervision of W. A. Wilson, formerly inspector in one of the dairy schools and latterly Superintendent of the Dominion Creameries in the Provinces. The bacteriological work is in the hands of an old O. A. C. boy, G. A. Charlton, while the Minister of Agriculture is another college boy of the early days, Hon. W. R. Motherwell. It will thus be seen that agricultural education is in the hands of well qualified men.

In Alberta during the past winter a

very interesting series of Institute meetings were held, while a two-day stock judging school, where score cards were used, was held in nearly every important town. A strong active campaign of agricultural education will be carried on through the Farmers' Institutes in connection with agricultural societies, through the dairy branch of the department, and in every way that it is possible to do so. Travelling dairies will be operated in all the outlying districts. A dairy school for instruction is likely to be started in connection with the creameries and an instructor put on to give instruction to both the butter makers and the patrons of every creamery. Last year twelve creameries were operated under the direct supervision of the Dominion Department of Agriculture. This work has been taken over by the Provincial Government, and will be continued along the same lines with the addition of seven new creameries.

Alberta presents a good field for active work with poultry, the dry climate being especially suitable for this industry. An instructor will be put on by the Government to give addresses throughout the Province in the best methods of raising poultry and of crate fattening in the fall. This instructor will also give demonstrations at all the leading exhibitions. The Province has also strong horse, cattle, sheep and swine breeders' associations, and under the auspices of these associations, a spring stallion show, a spring cattle show, fat stock show and bull sale are annually held during the month of May. The bull sale is one of the unique features of the Province being a great co-operative scheme whereby the breeders may send to Calgary at a cost of \$1.00 per head all the surplus

pure bred stock which they have for sale. Here they are sold by auction to the highest bidder, who has them returned to his farm at the moderate cost of \$2.00 per head. Ranchers and those desiring to get bulls attend the sale, and have a chance to pick out the animals which they desire to obtain. This sale has been of immense advantage to the breeders, and the live stock industry is pushing forward at a great rate.

An active programme for the destruction of weeds will also be carried out. The Province is being divided into small districts with a weed inspector supervising each district and over the local weed inspector there is one general inspector who will direct their work. He will give assistance and instruction wherever it is needed.

O. A. C. graduates are at work in many directions in the Province. On newspaper work there are M. D. Geddes, B.S.A., E. L. Rievhardson and R. J. Deachman, B.S.A., while W. C. McKillican has charge in this Province of the work of the Dominion Seed Department. In the Department of Agriculture, looking after the live stock work, is T. B. R. Henderson, B.S.A., while the Province in general has a good share of college graduates.

The foundation is now being laid for agricultural education in the west, and I think I am safe in saying that it is being started on a wide scale, and those who are directing the work are fully seized with its importance. What the harvest will be, time only will tell. Should it be in keeping with the hopes of those who are sowing it will be a wonderful one and will make this Province the banner one of the Dominion. This may seem far-fetched, but just watch us grow.

Ranching in Alberta.

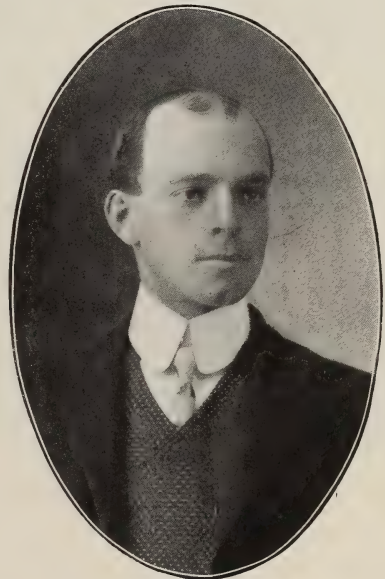
By E. C. HALLMAN, B.S.A., Airdrie, Alta.



ANYONE who has been in the Canadian North-West for some time cannot fail to have noticed that there is at present a transition in the methods of the ranching business. The "old-timers" either squatted on the public domain or secured a small piece of land upon which to place their buildings and make their homes. They turned their stock on the open prairie, which was then held by the Crown or by railway corporations. Thus they were enabled to invest most of their capital in stock, and secure feed without cost. There were thousands of acres of the best pasture lands not so much as trodden by a single hoof, and the ranchmen had only to let their stock increase and fatten until it reached its highest market value. This was indeed the ranchmen's paradise.

But to-day quite different methods are necessarily followed. The open range has been taken up by the settler. Communities, and villages and towns have sprung up where once stock pastured unmolested over the boundless prairies. Fences have marked out the settlers' holdings, and the ranchman finds it necessary either to adapt his methods to the new conditions and buy his pasture land, or to move his stock back from the immediate encroachment of settlers. This change has been accepted rather reluctantly, and almost everywhere the ranchers strove to stem the tide of settlement by pronouncing their district as utterly unfit

for agriculture. Some of the most productive agricultural districts have been reclaimed from what was popularly believed to be fit for grazing purposes only, until now almost the whole of Alberta is regarded as having immense agricultural possibilities. The settlement of the country, the production of highly remunerative crops and the increased faith in the future of the country have had a marked effect upon



E. C. HALLMAN, B. S. A.
One of Alberta's Leading Horse-Breeders.

land values. In good locations land has advanced from three to four times its cost three years ago, so that the ranchers who bought large tracts of land have found this investment more remunerative even than their investment in stock. It cannot be said, therefore, that ranching in earlier times offered greater inducements for young men

than now. Besides the opportunity for holding land for higher values, the ranchman of to-day has also the industrial, commercial and social advantages that come with a well-settled and prosperous community.

Horses and cattle are the chief classes of stock on the ranches of Alberta. Horses of all ages thrive well on pasture the year round without any supplementary feeding, though of late some of the best horsemen feed hay or green oat sheaves to the suckers and yearlings. There is plenty of

to have such excellent specimens of Clydesdales annually imported into the Province. Hackneys, too, are making a name for themselves in the West. Many readers will remember the champion stallion "Robin Adair," who after heading a stud near Calgary for ten years, won first honors against all comers in America. Some of his get have been brought east and to their credit stands the winning of both male and female championships at St. Louis (World's Fair), as well as at the Toronto Industrial. As the horses may



A Round-up in Expanse Coulee Belly River, S. Alberta

room for improvement in the horse business. He who produces the desirable type of heavy horse, or the light harness horse, will always find a ready market for his produce. The tendency in the West, as in most other parts, is for breeders to adopt the short-sighted policy of cheapness instead of best quality in their selection of their foundation stock. Many good breeders are demanding a really good article for breeding purposes, and it augurs well for the improvement of the heavy horse

be allowed to run in pasture the year round, they develop a strong, vigorous constitution, sound limbs and the best of feet. Alberta needs more men with high ideals of horse-flesh, and in the course of time she should become the banner horse-breeding Province of the Dominion.

Cattle are not as hardy as horses, and consequently require more feed during the winter months. All breeding stock and calves should be fed hay at least during cold weather. The



Roping a steer in the open.

strong steers of two years old and over, if in good condition, do well on pasture without supplementary feeding, though they require a year longer to mature. The majority of cattlemen allow their cattle to "rustle" until the

of the smaller ranchers have been raising grain crops, and by grain feeding their bullocks during the third winter they are able to market them a year sooner. It will be noticed that cattle ranching requires more labor per head

of stock and more land in comparison with the capital invested in stock than does horse ranching. There are so many different methods employed by ranchmen that the details of the business cannot come within the scope of this article, for indeed scarcely two men follow



A Typical Bachelor's Shanty, Key Horse Ranch, Airdrie, Alta.

winter of their fourth year, and then fatten them on prairie hay during the winter in open sheds or in some naturally sheltered spot in the pasture. Thus they are in marketable condition at the age of four years. Recently many

the same ranching policy. Many cattle men do no breeding, but buy their young stock and prepare them for market.

The future of the ranching business in Alberta, as predicted by present in-

dications, will tend toward the improvement in the quality of the stock by more judicious breeding, feeding and management. A more economical use will be made of the land than pasturing the wild prairie grasses, as land values advance. There will be a tendency for the present ranchers to become engaged in mixed farming and to feed their stock more nearly as it is done in Ontario. In districts that are unfit for agriculture, such as the foothills of the Rockies, the old style of ranching may continue for many years. Lands in the outlying districts may be secured by lease from the Dominion Government. The lease regulations may be had by applying to the Department of the Interior, Ottawa, or to the

Dominion Lands Office, Calgary. The regulations are such that by paying an annual rental of two cents per acre and placing on it at least one head of stock for every twenty acres, the lessee may hold such lands for twenty-one years, provided that these lands are not required for settlement. If, however, the Dominion Government sees fit to open these lands for settlement, then the lessee is given two years notice of the cancellation of his lease. But railways are rapidly pushing their way into almost every part of the Province, and settlers are pouring in by thousands, so that in all probability it will not be many decades until the large proportion of the agricultural land will be owned by the foundation of nations—the tiller of the soil.

CHINOOK.

Mildly through the mists of night,
 Floats a breath of flowers sweet,
 Warmly through the waning light,
 Wafts a wind with perfumed feet,
 Down the gorge and mountain brook.
 With the sound of wings—Chinook.

By no trail his spirits go,
 Through the mountain passes high:
 Where the moon is on the snow
 And the screaming eagles fly;
 Where the yawning canyon roars,
 With memories of misty shores.

On still prairies, mountain-locked,
 Frost lies white upon the grass,
 But where the witch of winter walked
 Now the summer's masquers pass;
 And at May's refreshing breath,
 Tender flowers rose from death.

And the breeze, that on the coast
 Wakened softly at the morn,
 Is on snowy prairies lost,
 When the twilight pales forlorn;
 Sweet Chinook! Who breathes betimes.
 Summer's kiss in winter climes.

—Ezra Stafford.

Grain Growing Under Irrigation.

By ALFRED ATKINSON, Montana.

IN inland areas of high altitude, where rainfall is slight, the addition of water, other than that supplied by the natural precipitation during the growing season, is imperative if highest returns are to be gained. The addition of this water to growing crops is the system known as irrigation.

When farming under irrigation, in addition to buying the lands, water must also be procured. This may come from one of two sources. Either from the natural mountain streams formed by the melting snows that have accumulated on the mountain sides and in the canyons during the winter months, or from storage reservoirs in the foot-hills where the water from snows and rains may be retained until liberated for irrigation.

When valley land is first taken up the farmers file a claim with the State Government for so many miners' inches, as this is the basis for measuring irrigation water, from the nearest mountain stream, and these "prior rights" are recognized. After all the water has been taken in this way, the usual method is to buy a certain portion from an early settler, or by building large storage dams across the canyons increase the amount of water available during the irrigating season. Most of the Montana Valley lands at present are covered by a water right, as these have been adjusted for some time, so that when a farm is purchased the water right is included.

As the water rights frequently include land several miles from the main stream, canals are built through the farms that are watered from the stream. Head gates are provided, and the amount of water to which each farm is entitled may be taken out. The adjusting of these is usually done by a "water commissioner," a man named by the local judge to apportion the water out as it has been filed upon.

The first essential to the proper irrigation of a field is that it must be as nearly level as possible. This is usually brought about by going over the field each way just before seeding the crop, with a 'large leveler', made by firmly bracing several 2 x 6 12-foot boards, usually four, about three feet apart. This removes the small irregularities, filling the low places and smoothing off the higher ones.

When the crop is up several inches, the main and lateral ditches have to be made. The main ditch comes from the canal and runs across the farm on the highest ground. The laterals radiate from the main, starting out every sixty to one hundred feet, according to the contour of the field. They are run to grade, giving them a fall of about one tenth of a foot in the hundred feet. If greater fall than this is allowed there is danger of great annoyance from the washing and cutting of the ditches. These are usually about four inches deep and are run with a double mold-

board plow. If the lateral ditches are plowed before the grain is up great annoyance comes from the grain growing up through the sides.

As soon as the side ditches are plowed, dams every twenty feet are constructed. This is usually done by means of a dammer, which consists of a flat board face fastened to the frame of an ordinary plow. This is drawn along the bottom of the ditch and when sufficient earth is collected in front, it is raised and the small mound remains. These settle and by irrigating time are effective dams.

It is unwise to irrigate before the crop is up, so as to fully shade the ground. If done before this time the baking of the soil, which comes as a result of the rays of the hot sun; makes undesirable crop conditions. A crop of grain such as oats or wheat sown April 15 will be fit to irrigate July 1.

When the water is turned in the main ditches, it is allowed to run past about four laterals and then is dammed. This forces it into the laterals. As it flows down these and comes in contact with the previously-constructed dams, it spreads, and is held until the space between the laterals is entirely flooded. The first dams are then cut out and the water moves on to the next, where it is stopped and spreads again.

A good active man can attend to water for about four or five laterals, and will get over from four to five acres in 24 hours. Not that he will remain in

the field all this time, but by regulating the water so that it will spread, considerable land may be covered during the night.

While all the cereal crops do exceptionally well under irrigation, one crop that gives phenomenal returns is sugar beets. It is recognized that late rains, which induce late growth in sugar beets cause a marked reduction in the sugar content. When the moisture can be controlled this does not occur, and very high sugar content and high purity results. Under this condition 22 per cent. sugar is not uncommon. Alfalfa grows splendidly under irrigation, and the perfect curing that is possible gives a feed of the highest quality. In all, the many hours of sunshine as a result of the cloudless days, coupled with "water only when best," makes conditions for maximum production.

An irrigation system affords control of one more of the essential factors in growth, than is afforded under ordinary humid conditions, viz.: The moisture supply. This can be added or withheld according as the needs of the growing crops dictate, and the effect is shown in the yields obtained. In the Gallatin Valley in Montana, where irrigation has reached a high state of perfection, a yield of 140 bushels of oats per acre is not uncommon. On the Montana Experiment Station Farm, which is located in this valley, a yield of 146 1-2 bushels of oats to the acre was harvested this past season.

The Mountains.

By H. S. PEART, B. S. A.

THE sun was just showing across the prairies when the Imperial Limited left the flourishing city of Calgary for a pull up the eastern slope of the Rockies. Up, up, up a steady grade, the mountains gradually growing clearer. The wheat fields are left behind, only the ranchers' shanties here and there dot the landscape.

After a good run of three and one-half hours, the famous Dominion National Park is entered a few miles east of the great health resort, Banff. Here are situated some of the finest hotels to be found anywhere in Canada. Thousands of tourists from Eastern Canada and the Republic to the south come here to spend a part of the summer months. Wild mountain scenery, and unexplored peaks and caverns add new features at every turn. Scores of miles of roads have been opened by the Government and afford delightful drives to many points of interest. Here also may be seen a fine collection of native animals. The great buffalo, elk, moose and many others graze behind high fences on either side of the main line of the C. P. R. Well kept drives around the enclosures permit the tourist to inspect these animals at close range.

The Sulphur Hot Springs annually draw thousands of invalids to gain strength and renew vigor in the magic waters. Many cures have been wrought for those who have remained for a few weeks and enjoyed the privilege of daily baths in naturally heated water.

From Banff, the railroad follows the tortuous course of the Bow River, whose icy waters are fed by the mountain snows. A few miles west, Laggan, a mountain divisional point of the C. P. R., and a famous resort, is reached. Beyond Laggan, the Great Divide at the crest of the Rockies is passed. From here the eastern waters flow to Hudson's Bay and the western to the Pacific Ocean. The journey to Field takes one through some of the wildest scenery of the mountains. Following along the world-famous Kicking Horse River, down a steep decline, guarded by safety switches, we pass, seventeen miles below, the picturesque village of Field.

Forty minutes for dinner and the journey down the mountain is again resumed, till at Beavermouth, the elevation is only 2,500 feet. From here the Rockies are left behind and the Selkirks are seen in all the glory of their forest wealth. A few hours and the Selkirk Summit is reached, with its elevation of 4,300 feet. The Illecillewaet River here appears only as a tiny mountain stream, tumbling over the rocky ledges. A few miles on a halt is made at Glacier House, where Mount Sir Donald, named in honor of Lord Strathcona, rises to a height of 10,600 feet. Twenty-five minutes of steady climbing brings the adventurous tourist to the Great Glacier. This great icefield is becoming each year more and more famous as a tourist resort.

Continuing the descent from the Glacier House, and following around the mountain side, the Loop is soon reached, where the line makes several startling turns and twists, first crossing a valley leading down from Mount Bonney Glacier, touching for a moment the base of Ross Peak, then doubling back to the right upon itself for a mile or so, then sweeping around to the right, touching Cougar Mountain on the other side of the Illecillewaet, crossing again to the left, and at last shooting down the valley parallel with its former course. Looking back the railway is seen cutting two long gashes, one above the other, on the mountain slope, and farther to the left, and high above the long snow shed, the summit range, near Rogers' Pass, is yet visible, with Sir Donald overlooking all.

At Illecillewaet the river is very turbulent, and is free from Glacier mud. The railway runs close to the brink and from here to Revelstoke may be seen some of the beauties of the western slope of the Selkirks.

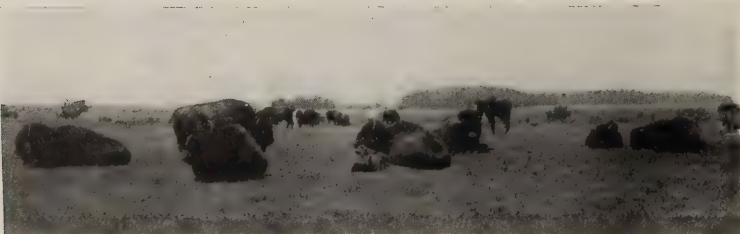
Revelstoke is a charming village, nestling among the mountains. It is a distributing point for the Kootenay mining district. The Arrow Lakes are reached by rail and boat from this beautiful spot.

The descent from Revelstoke is along the Columbia River. Ahead may be

seen the undulating crest of the Gold Range. Forty miles below, nestled in low hills, Lake Shuswap comes into view, on an arm of which is situated the C. P. R. station and Hotel Sicomous (mosquito), the junction point for the Okanagon fruit district.

After passing around Lake Shuswap and along the Thompson River, with the Gold Range rising on either side, the old Hudson's Bay fort, Kamloops, now the principal town in the Thompson Valley, is reached. Here the traveller is afforded the first sight of large herds of horses and cattle since leaving the prairies.

Down, down, down, the trees increasing in size, the vegetation becoming ranker and ranker, the scenery changing rapidly into broader stretches and lower hills. Agriculture is beginning to show itself now. The Dominion Government realizing the value of this country have established an agricultural experiment station at Agassiz. From Agassiz, with an elevation of 200 feet, to Vancouver, at sea level, the country is richly wooded and bears testimony of the fertility of the Pacific Coast. After a few days of mountains the salt breezes from the Pacific add a long-to-be-remembered freshness to the traveller, who remains for a time in Canada's young western city of Vancouver.



Forestry in Western Canada.

ROLAND D. CRAIG, F. E.

THAT fully one-half of the area included in the Provinces of Manitoba, Saskatchewan and Alberta is covered by forests is a fact, of which few people are aware, so prominent have the fertile prairies of the West been made. The proximity of the treeless country greatly enhances the value of the forests that are left and makes their preservation of greater importance even than in Ontario and Quebec. I say "left" because it is my firm belief that the prairies have in the past been forested, but that fires, assisted, to some extent by buffaloes, insects, fungi and other destructive agencies, have caused the disappearance of the trees. The level surface of the ground has enabled the fire to run over large areas and to sweep everything clean as it went. But it will be noticed in travelling through the West that wherever natural fire-breaks, such as hills, streams or lakes occur, almost without exception remnants of the forest are to be found. These patches of timber are often so isolated that only former continuity of forest can explain their existence. Modern illustrations of the transformation from forest to prairie can be seen along the edges of almost every body of timber. So closely are forests associated with hills in the western summit that groves of trees are called "bluffs," which originally meant hills.

The forests, which grow in this western country are certainly not so valuable as the white pine or the hardwoods in Ontario, being composed chiefly of white and black spruce, larch, Banlssian pine (in the east), black or lodge pole pine(in the west), aspen, balm of Gilead, white birch, American elm, green ash, scrub white oak, cottonwood and Manitoba maple, but logs of good size and quality are produced north of Prince Albert. The aspen, which is probably the most abundant species, makes excellent fuel, and has the additional advantage of growing quickly and reproducing readily. From data collected in Manitoba last season, the following table, which gives a conservative estimate of the yield of an aspen forest, has been made:



Nature—near Portage la Prairie
and in Winnipeg.

Age.	No. Trees per acre.	No. Dia. Bli. inches.	Av. Height feet.	Av. Volume, cubic feet.	Yield per acre, cords
10	4,000	1.5	13.5	.1	4
20	2,500	3.2	28.0	.8	22
30	1,200	4.7	38.0	2.4	32
40	850	6.0	46.5	4.3	41
50	625	7.2	51.0	6.8	47
60	425	8.7	54.0	11.1	52
70	335	10.1	56.5	14.0	55
80	300	11.1	58.0	17.4	58

It will be seen that with a forty-year rotation, an annual harvest of one cord per acre could be obtained, which means that a forest of twenty acres will supply a farmer with practically all the fuel and fence material he requires.

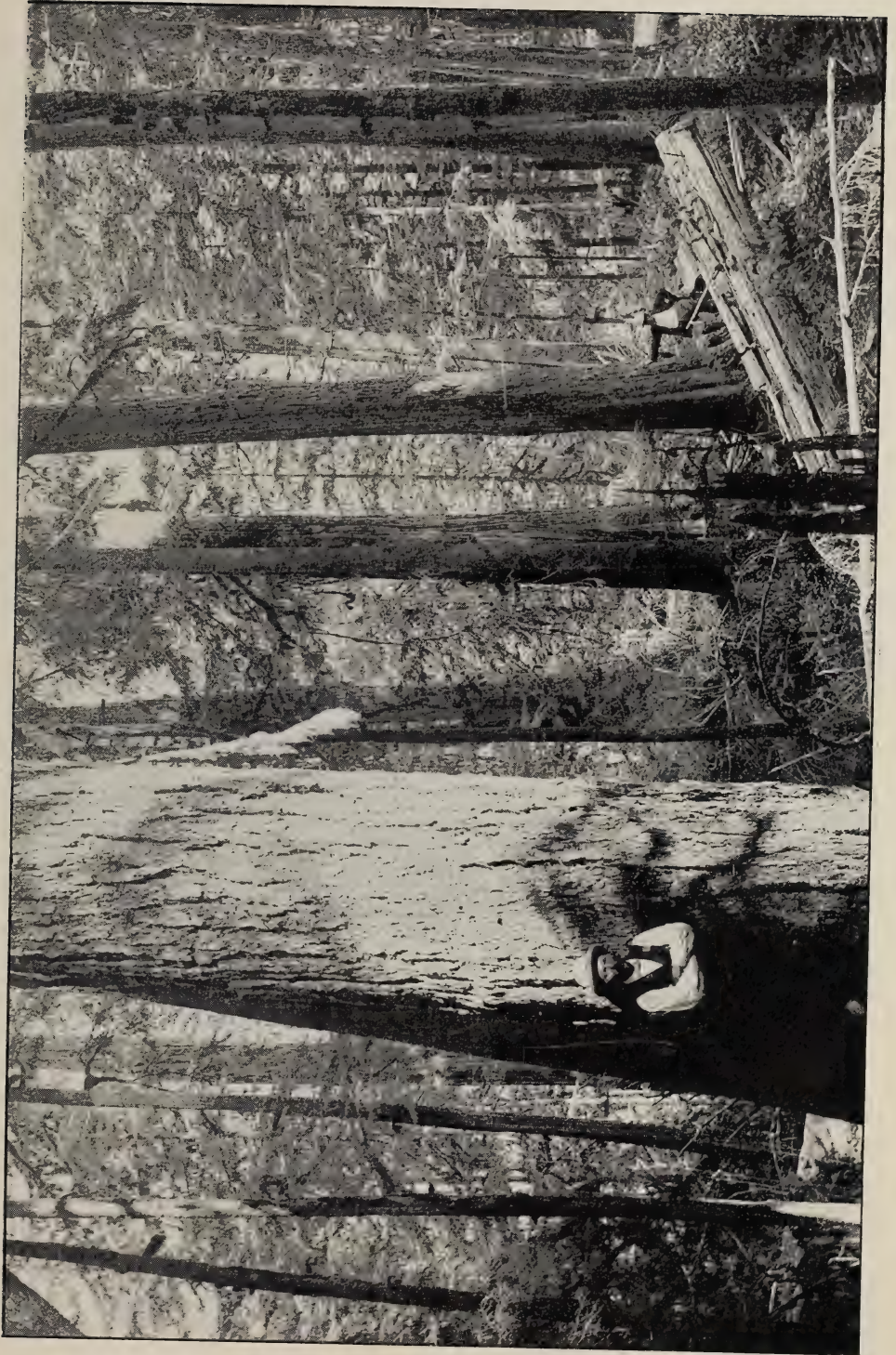
It is not practicable for every farmer in the West to have a large wood lot, but there are scattered through the country timbered areas which the Government is reserving as commercial wood lots, from which settlers may obtain their supplies of wood. At present 2,479,360 acres are thus held as forest reserves in the Middle West, and 3,852,800 acres in the railway belt in British Columbia, but it is expected that this area will shortly be increased to 12,000,000 in the Provinces of Manitoba, Saskatchewan and Alberta, and to 4,200,000 in British Columbia.

These reserves are nearly all located at the headwaters of streams, which flow down through the prairie, and supply water to the grain fields. Thus in conserving the timber the reserves also protect the water supply. The prevalence of spring floods and summer drouths in the prairie streams is due to the lack of forest cover to check the run-off, and year by year, as the timber is being destroyed by fire and axe, this condition increases.

Another important use of the forest reserves is to protect the game, which once abounded throughout the land, and brought immense wealth to the Hudsons' Bay and other fur-trading companies. It is the object to keep strict supervision over the game in these reserves, and to preserve as a source of national revenue the furs, for which Canada is famous the world over.

The term "reserve" is often misunderstood to signify that the timber and other natural resources are to be withheld from use, but on the contrary, it means only that the land is reserved from settlement, and the timber, minerals, animals or other resources which may be within the reserves are to be used for the good of the people as a whole, and not for the purpose of enriching the pockets of the few who may be able to secure Government concessions. The exploitation of the forests, game and mines will be placed under Government control as much as possible and the reserves will be made a source of revenue to the country instead of an expense.

In America any restrictions in the free use of the resources which nature has given us is regarded as too paternal for a democratic form of government, but in dealing with the forests, which are so necessary in the life of a nation, and which, in private hands, are easily destroyed and difficult to replace, al-



Forestry in the Railway Belt in British Columbia.

most every country which has a forest policy at all has recognized the necessity for strict Government control. In Switzerland, which is perhaps the most democratic country in the world, the greatest restrictions are enforced even in the handling of private forests. The United States has had to come to it, and now has over 50,000,000 acres under reserves, which are being administered most conservatively. Cutting regulations and reforestation are good, but without fire protection, are, of course, useless, and, as in the past, this will continue to form the most important part in the management of the forests. The Dominion Government has now forest rangers scattered all through the West, and the Mounted Police render valuable assistance, but the force is entirely inadequate, and will have to be greatly increased.



Shelter Belt on the Prairie in Manitoba.

Everyone conversant with conditions in British Columbia is loud in his praise of the Dominion fire-ranging service in the railway belt, which has in the last three years practically kept fires out of that region, while on both sides, where no rangers are employed, disastrous fires have occurred annually.

The traveller who revisits the great grain-growing belt in the West, after a few years' absence, notices almost sooner than anything else the change in the appearance of the country, due to the planting of shelter belts on the farms, making the homes more cheerful and comfortable. These plantations, some of which are now four or five years old, and ten to fifteen feet high, are largely the result of the efforts of the Forestry Branch in this direction, and

are in themselves the most eloquent expounders of the doctrine of tree-planting. Since the Forestry Branch commenced the free distribution of trees in 1901, 2,215 settlers have availed themselves of the opportunity, and are now in the possession of good shelter belts and wood lots. The success of these men has encouraged others, and the number of applicants for trees is increasing rapidly annually. This spring 1,300 received trees, about 2,300,000 being sent out. Manitoba maple, cottonwood green ash, American elm, and Russian white willow are the chief species distributed. The success of this undertaking is due to four points, which the Forestry Branch has adhered to, viz., thorough preparation of the soil before planting, personal inspection and instruction by officers of the Branch, the supply of reliable plant material grown at the forest nursery stations in the West, and cultivation until the trees are able to shade the ground and protect themselves. The local conditions are studied in each case, and only such species as are suitable are sent.

As a result of the interest aroused in tree-planting, several large nurseries have started in the West, and are doing a large business. With shelter many of the more tender ornamental trees and shrubs and hardy varieties of such fruits as apples, plums, cherries, currants, gooseberries, raspberries and strawberries may be grown successfully on the prairie.

The forestry problem in the West, including, as it does, the protection and administration of existing forests, and planting of shelter belts and wood lots on the prairie, is one of immense importance, and offers opportunities for practical scientific work which are to be found in few other fields.



Temiskaming.

By J. B. REYNOLDS, B.A.



IN July, in company with Prof. Zavitz, I had the privilege of visiting the district of Temiskaming and addressing a number of Farmers' Institute meetings in several of the townships. We found the farmers there anxious and eager for information. They have met with the usual difficulties that the pioneers encounter, and, besides, have a number of special problems imposed by the peculiarities of climate and soil. The meetings were well attended, and the interest throughout very gratifying. I myself discussed particularly the question of the climate of the district, soils and the proper methods of cultivation. While I undoubtedly gave some assistance to the farmers who attended the meetings, for my own part I obtained a great deal of valuable information from them during the discussions, and in private conversations. Before going there, I had made a detailed study of the climatic conditions of the district, so that on that point, at least, I could speak with some authority. Also, I had the opportunity of analysing a number of soils from that district, so that I understood their general characteristics. A few observations under these headings respecting this district might not be out of place at this juncture.

The agricultural part of the district of Temiskaming commences about one hundred miles north of North Bay. Proceeding by the new government road, the Temiskaming and Northern Ontario Railway, the traveller passés

through a district of forest and rock of little or no agricultural value, until the railroad approaches Lake Temiskaming. Haileybury, which is near the southern border of the good agricultural land, is on latitude 47 degrees, 30 minutes. The part that has been surveyed extends about to 48 degrees 30 minutes north, 70 miles north of Haileybury. Within this district, about 40 townships, each six miles square, have been surveyed, and of these 40 townships, the Crown Lands Agent at New Liskeard informed me, fully two-thirds of the land is tillable. The district borders on its eastern side the Province of Quebec.

The soil of Temiskaming is, for the most part, a deep calcareous clay, almost identical in character with that of the so-called clay belt farther north. Clay thrown out from the bottom of the wells twenty feet deep and allowed a little time for weathering, will produce as abundant crops as the surface clay. Here and there, of course, over the district there are patches of loam and sandy loam that are well adapted to gardening, but the amount of these kinds of soil is relatively small. The clay of this district has the characteristics of clay elsewhere in being difficult to work and very retentive of moisture. It is, however, unexpectedly friable when sufficiently weathered. This property is likely due to the large proportion of lime present in the soil. Generally, the soil of this district is deficient, and, in some places, devoid, of vegetable matter. Before the best results can be attained in agriculture

there, this strong clay would have to be reinforced with humus. Here and there over the district are patches of muskegs, as they are called, consisting of a considerable depth, four or five feet, or more of unmixed vegetable matter in the process of decay. These patches are not well adapted to cultivation or to growing crops, and it is generally advisable to burn them off until the clay beneath can be reached with the plow. A mixture of clay and vegetable matter is in every way superior to either clay alone or vegetable matter alone. One peculiar feature of the muskegs, although generally they are in that district slightly higher in elevation than the surrounding ground, is the liability to summer frost. Potatoes and other vegetables that have been planted on the black muck have been frozen when similar crops planted on clay on the adjoining lower ground have escaped. The freezing of plants on relatively high ground is contrary to the usual experience, and, in this instance, must be due to the unfavorable behavior of the dry, loose, and light vegetable matter.

These soils seem to be specially adapted to legumes, at any rate, to clover and peas. We observed all along the road abundant growths of these crops. Cereals, thus far, have not done so well. It may be that cereals will succeed better when the land becomes properly tilled. Vegetables do well where the land is drained and well worked with a sufficient quantity of humus in it. Even without cereals the soil and climate that will produce grass, clover and peas abundantly, with small fruits and vegetables, offers an inviting field for the farmer. It seems probable that stock-raising will be followed extensively in that district. Both climate and soil are well adapted to grazing,

and fodders grow abundantly, and the climate, both winter and summer, is healthful for stock.

We are accustomed to think of New Ontario as being very far north, and as possessing an extreme climate. We should remember that the center of this district is fully 2 degrees, about 140 miles, south of the City of Winnipeg, or 3 1-2 degrees, about 250 miles, south of Calgary. There is nothing in the topography or the situation to make its climate unusually severe; in fact its climate is no more severe than other districts of the same latitude in the Northern States. The mean annual temperature at Haileybury is 37.8, that at Toronto is 44.2, at Winnipeg 33. The temperature for the six hottest weeks at Haileybury is 65.3, at Toronto it is 67.3, and at Winnipeg it is 65.0 The mean temperature for the winter months, November to March, inclusive, at Haileybury is 15.2, at Toronto it is 27.2, and at Winnipeg it is 5.3. On the average the number of days of the year during which the mean temperature stands above 43 is at Haileybury 172, at Toronto 188 and at Winnipeg 160. These figures, respectively represent on the average the length of the growing season at the three points mentioned. The season at Haileybury opens about ten days later than at Toronto, at Winnipeg fourteen days later.

As to precipitation, the mean annual precipitation including rain and snow, at Haileybury is 32.3, at Toronto 31.1 and at Winnipeg 21.6. These figures indicate that in the matter of temperature and length of season, the district of Temiskaming stands about midway between Southern Ontario and Manitoba; while in the matter of rainfall and snowfall, the Temiskaming district stands on a par with that of Southern Ontario, and exceeds that of Manitoba

by 50 per cent.; in fact, the climate of this district is in most particulars quite similar to that of Southern Ontario with only the differences that may be expected from a more northerly latitude, namely, a severer winter, a shorter growing season, and an occasional occurrence of late spring and summer frosts.

On the matter of summer frosts the settlers seem to be somewhat anxious. At present they occur frequently, and have done a considerable amount of damage to potatoes and cereal crops, when occurring in July and August. While speaking at the meetings, I took occasion to assure the farmers there that if the experience in Southern Ontario could be taken as a criterion, the summer frosts would certainly lessen in frequency and might disappear altogether. The gradual draining of the land would help in this particular, by allowing the soil to become warm earlier in the season and to store up quantities of heat that would help to prevent an undue cooling of the atmosphere. The more important factor, however, in lessening the spring and summer frosts would undoubtedly be the gradual clearing of the forests. A small clearing in the midst of a forest holds the same relation to the forest tops as a depression in the ground does to surrounding higher ground. On cool summer nights the frost is sure to strike the low places first, and this is what happens with the small clearing in the midst of the forest. The forest retards the action of the wind and allows the stagnation of air in the clearing and the settling of the cold air to the lowest places, which is favorable to frost; but when clearings are widened and openings are cut through the forest, allowing free vent of winds, such a condition of stagnation of the air will

not occur, and I have no doubt that the danger from summer frosts will materially lessen as time goes on, and for the same reason the growing season will be lengthened. Crops may be sown earlier and left later without fear of damaging frosts. Such has been the experience in Southern Ontario, under identically the same conditions.

In these remarks concerning the forest, I do not wish to be understood as setting myself in opposition to those who regard the forests as a beneficial condition, and who are using all their endeavors to prevent the wholesale destruction of the forests in our new districts. My position on the question is, that from lands intended for agriculture in these northern latitudes, the forest should be removed as quickly as possible. The improved conditions of the climate that result from the removal of the forests are in northern latitudes especially noteworthy. Considered merely as a condition, the forest has the following influences on climate:

- (1). In holding the snow and delaying the advance of spring.
- (2). In favoring spring and summer frosts, as explained above.
- (3). In procuring a cooler summer.

These being the effects of the forest, it is obvious that in latitudes where short seasons with occasional summer frosts occur, any course that will improve conditions in these respects is to be strongly commended.

The removal of the forests from the agricultural lands in Temiskaming will not by any means involve complete deforestation. There are rocky ridges, ravines and hillsides on which either the soil or the topography will make agriculture unprofitable. If a wise policy is followed, such as is recom-



A Homestead in New Ontario.

mended by the Forestry Department. such areas will be left forested, and these will be of sufficient extent to preserve to a sufficient degree the beneficial influences of the forest on the distribution of water. There is a misapprehension that the forest has an influence on the amount of precipitation, rain and snow. Authorities now generally agree that as a matter of experiment, the influence of the forest on the amount of rainfall and snowfall is undetermined; and as a matter of theory, the influence of the forest in temperate latitudes is not in the direction of greater precipitation. While this is true, the effect of the forest in controlling the precipitation after it reaches the ground and becomes ground-water, is of immense importance. The forest itself, as well as the forest floor, prevents the denuding of the hillsides, the occurrence of destructive freshets in the spring or after heavy rains, and the exhaustion of the ground-water in the summer. This influence is of the very first importance, especially in hilly or mountainous regions, and for this influence alone the

agitation that has been raised latterly concerning the preservation of the forest is justified; but for the district of Temiskaming, and, in fact, for all agricultural lands through New Ontario, the other influences of the forest are detrimental to agriculture, and the amount of forest that will remain after the agricultural lands are cleared, will, I think, be sufficient to serve all the beneficial effects of the forest, and at the same time will not be extensive enough to retard the spring or to encourage summer frosts. The best thing that can be done, therefore, for New Ontario, is to clear the arable lands as early as possible.

I observed during my trip through the district of Temiskaming that there are many inducements which prevent the rapid clearing of the land. This district is not solely an agricultural district. The famous Cobalt region is within a short distance of the agricultural land of Temiskaming; lumbering is a very important industry there as yet; and the new railroad that is being constructed requires large numbers of hands. The mining, lumbering, and

railroad industries combined, offer inducements for employment that at present are distracting the attention of the settlers from their main business. The result is that the land is being cleared very slowly. It is needless to say that these distracting occupations, however profitable they may be in the meantime, are unfavorable to the development of agriculture in the New Ontario districts by delaying the clearing of the land and the proper cultivation of the soil. At the same time, the opportunities for employment afforded by these industries make it possible for

many to pay their way by engaging in one or other of them. The presence of such large numbers of workers through the districts creates a brisk demand for local products at good prices, so that from the very first the farmer can realize profitably from his crops. Temiskaming is the place for the young man with little means, lots of pluck, energy, and physical strength. If he takes the occupation of farming seriously, clears the land as soon as possible, and tills it properly, he need not long depend upon other industries for a livelihood.

THE CANADIAN WEST.

Upon the vast, illimitable plain,
 Which long had kept the silence of the years,
 The sturdy pioneer his temple rears
 In home new-built, and fields of golden grain.
 An ancient miracle has come again ;
 For who could paint, though wisest of the seers,
 In the iean past, the West as it appears,
 Bearing the wealth of Indus in its train?
 Through all the aeons since the old world's birth,
 There stillness sat enthroned, with none to urge,
 Swinging her magic censer o'er the earth,
 To bless the toiler of a late-sent age.
 For those who garner under western skies,
 Has earth reserved her last and richest prize.

—R. S. Somerville.

“Tempora mutantur et
nos in illis.”

The years full swiftly pass away,
And Nature doffs the garment gay,
That pleased our eyes in childhood's day,
 And we no more,
Thrill with the beauty of the May,
 As once of yore.

At times a cloud o'ercasts the soul,
But at a word the mists unroll,
The vapors dank, from pole to pole,
 Are swept away,
And 'neath Dame Nature's sweet control,
 Our hearts are gay.

The forests shout, the mountains sing,
The woods with sylvan echoes ring,
While birds flit by on lightsome wing;
 Their joy we feel,
And yet a mournful note we bring,
 Their sweet appeal.

Dim mem'ries of a fairer land
Surround the child on every hand—
The land he left; but while the sand
 Of Cronos' glass
Is ebbing fast, a silver strand,
 These mem'ries pass.

But Nature woos us for her own,
When childhood's gladsome day is flown,
And youth's resplendent blossom blown.
Her ardent gaze,
Forbids the soul bereaved a moan,
Or sigh to raise.

Behold the little child at play!
Life's busy mart his fancies sway,
A mimic world he fashions gay,
To him unrolled,
The flinty paths of common day
Seem streets of gold.

But Nature binds him fast in thrall,
His eager spirit beats its wall,
She will not let him speak at all
Of heavenly lore ;
While we in bootless quest must crawl
Past wisdom's door.

The flowers have lost their pristine sheen,
But still the glimpses we have seen
Of our long home, its joy serene,
Will cheer our way ;
Our love for Nature fuller seem,
And deeper aye.

Iain Baig.



The O. A. C. Review

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Editorial

The first annual award of the '05 medal will this year be made to J. Bracken. As mention of **The '05 Medal.** this prize has already been made in a previous number of the Review, it is not necessary to make lengthy comment here. Suffice it to say that the one unique feature in the conditions of award is that the classmates of the winner are mainly his judges. The vote is taken by ballot, the electors being governed by their impressions as to the best all-round man in the class. It has come to be a well recognized fact in the leading colleges that the student who pores over his books and notes regardless of the needs of his classmates is inherently selfish, notwithstanding that he might attain a very high standing in examinations, and even in the esteem of his teachers. It was the wish of the donors of this medal to

exclude such an one from winning, and in the selection of the first champion the electors have shown that they thoroughly understood the sentiments of the '05 class. From the first day of his freshmanship to the day of his graduation, Bracken has always been foremost in everything contributing to the welfare of the student body. It is safely anticipated that all who knew him will join with the donors of the trophy and with the Review in wishing him heartiest congratulations and God-speed in his future work.

A pseudonym, though a long and high-falutin word, is perfectly harmless, if treated in a proper manner. If, however, the candidate, **The Blucking of Candidates.** whose name is Tom Smith, is given the pseudonym of Weasel, it is very bad

practice for Thomas to sign his name T. S. It might seem to him like ditching his individuality to leave no mark of his favor resting upon his work, but nevertheless, the powers that be determine that if any evidence of Thomas is found among his answers, Thomas must not receive his degree. This system, as far as we can learn, was adopted as a protection to the student against the dishonest professor. Though not, by any means, a perfect system, it has worked fairly well, especially in the larger institutions, where the writing of the candidates is unfamiliar to the examiners. If, on the other hand, the examiner can identify any letter, mark, figure or expression as the property of a certain candidate, it is quite clear that the pseudonym is worse than useless, for it not only gives the disreputable examiner an opportunity to disfavor an unpopular candidate, but affords a cover behind which he may crawl. After a teacher has had four years with a class of twenty-five or thirty pupils, examining their writing every week and hearing their peculiarities of expression every day, he doesn't require the perception of an Indian guide to place his man the first page. Everything is as plain to him as the proverbial "new moon against a November sky." This is why the pseudonym is ludicrous in a class of thirty men. In twenty out of the thirty cases the examiner knows the writer before he opens the answer book, the pseudonym on the outside front cover page is usually sufficient index. Seeing those things are so the class is largely at the mercy of the professors, and therefore the utmost care must be ex-

ercised if the candidates are to receive full justice. All the present fourth-year is asking is a fair field and no favor. They are, without exception, an industrious, faithful and intelligent class and under normal circumstances, "will make the grade."

It will be noticed, doubtless, that this, the last number of the college term, is devoted chiefly to younger Canada. It is **Our May Number.** not our ambition to run a special number dealing only with the great Northwest and with New Ontario, but rather to make some of the agricultural phases of the newer Provinces a special feature of an ordinary May number. Throughout the whole Dominion, and especially among our students and graduates, so general and so keen an interest is taken in the possibilities of our boundless prairies and of the great clay belt to the North, that we feel justified in filling our columns this month with matter relating to this vast heritage of ours, and to our old boys who are making fame and fortunes for themselves in its development.

For the greater part of our matter, both articles and cuts, we are indebted to several of our graduates, each of whom writes whereof he knows. In dealing with so wide a subject, it is, of course, financially impossible for us to do more than touch upon a feature here and there, but even as we appreciate the kindness of our old boys in giving us such material support, so we hope, will they and our readers in general, appreciate this slight departure from our ordinary number.

Old Boys in the West

Westward the course of Empire takes
its way;

The four first acts already past,
A fifth shall close the drama with the
day;

Time's noblest offspring is the last.

So it would seem judging by the
numbers who leave our college home

each year and make for themselves homes in our Western Empire. Each successive year prepares its quota of men for the efforts involved in developing this new country, and at the same time fostering her resources. Each succeeding year brings to our halls sons of sires who have found out by experience what the country is capable of doing and wish their children and grand children to reap these benefits. As to those who have

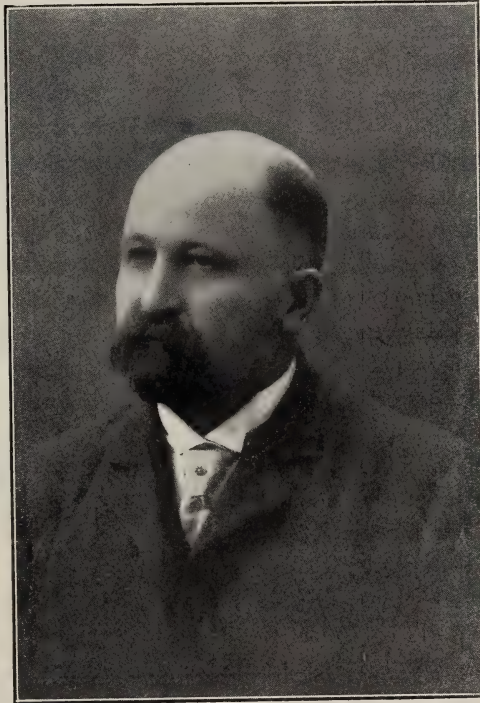
left us and who are lending their best efforts to the development of our Western areas, their name is legion. Impossible it is to mention, or even attempt to mention, all in our columns, but ex-student, if your name is overlooked, do not think that we have forgotten you. We have not, and if you

are succeeding we are proud of you, but if the result of your endeavors has not been as satisfactory as it might have been we will be glad to help you if we can. We are justly proud of the record which a great many of our ex-students have established for themselves, and thus indirectly for their

Alma Mater. In issuing this "All West" number it is our intention to bring, if possible, our ex-students in the West into closer touch with one another, and with their college home. We trust our efforts will be appreciated by all readers, and that they may feel, even if they are absent and separated by long distances, they are not forgotten.

W. A. Motherwell, B.S.A., '81, is a graduate upon whom we can well look with pride.

When a student, he gained an enviable reputation, and since then has fully sustained it. On his farm at Abernethy he has proved himself a practical, enterprising and successful farmer, and has so won the esteem of the residents of the new Province of Saskatchewan that upon its formation in 1905, he was elected as



W. A. MOTHERWELL.



JOHN A. MOONEY.

Minister of Agriculture for that Province. We have every reason to believe that the choice has been fully justified, and that our energetic ex-student is giving the best that is in him for the advancement of agriculture in that Province.

Norman M. Ross, '94, is Superintendent of the Forestry Branch at Indian Head, Sask. His duties keep his time well occupied, but his interest in the O. A. C. is as good as ever.

A man at once prominent and popular is John Mooney, of Valley River, Man. Situated as he is, in one of the most fertile parts of that country, nature has been most kind to him. His broad, advanced and practical ideas on agriculture always insure him an audience at the Farmers' Institute meetings, in which he takes a lively interest, and we feel safe in saying that few men are more universally liked and respected.

H. W. Boyd, '96, is actively engaged in agricultural life on his farm at Killarney, Manitoba.

M. S. Middleton will be remembered as the lively supporter of '06. He is at present supporting himself by fruit-farming near Vernon, B. C.

Geo. F. Rowe, the popular member of the class of '92, is now farming near Lumsden, Sask.

In the thriving city of Winnipeg, Geo. H. Greig is making a name for himself. For a number of years he was connected with the editorial staff of the Western edition of the Farmer's Advocate. His present duties as Secretary of the Live Stock Association and President of the Winnipeg Fair Board, keep his time fully occupied.

In W. J. Carson, '02, we have a newcomer to the West, but one who will prove none the less valuable on that account. Coming from the East, where so many wise men have previously come, Carson always took a high standing, and showed himself a good practical man, as well as a good student in his chosen line, that of dairying. Four years' experience as Professor of



W. J. CARSON



JAS. DUTHIE

Dairy Husbandry in Wisconsin Agricultural College fit him admirably for a similar position, which he now occupies in the new Manitoba College.

It is with much pleasure we learn of the appointment of W. J. Rutherford as Professor of Agriculture in the same college. Recent students of the O. A. C. will remember Mr. Rutherford as Dean, with which duties he was able to combine the regular course and to receive his degree with the class of '03. He was chosen as Assistant Professor in Animal Husbandry at Ames, upon graduating, which position he has filled very acceptably. He enters upon his new duties on the first of June. The Review joins the many friends of these two pushing ex-students in wishing

them every success in their new positions.

Andy Anderson, '01, is travelling for a separator company, with his headquarters at Winnipeg.

C. W. Forbes, '96, is ranching near Medicine Hat. He reports good success.

At Melita, Man., W. H. Ainley is farming.

R. H. Wilson, '97, is farming at the same place, both are on the highway to prosperity.

Arthur Jas. Robertson, '98, is one of our graduates who is making himself felt in the West. While at college his executive ability was early recognized, and it needed but the stimulating influence of the West to develop all that was in the man. In his home town of Davidson, Sask., he takes a leading interest in the social, financial, religious and political life, and is one of the best known men in that part of the country.

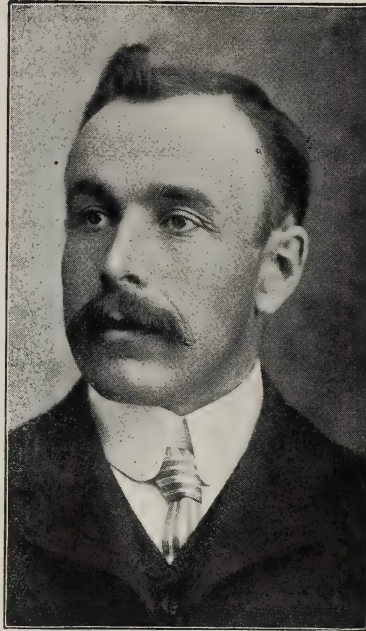
At Moosomin, Sask., we find two of our enterprising ex-students. E. S. Wilson entered the O. A. C. in '96, and, after completing the two years' course, decided that the West possessed the most attractions. His choice has been amply justified, and his large farm and stock indicate the soundness of his judgment.

As a Farmers' Institute lecturer and practical farmer, R. J. Phin, '79, is making himself felt. He has successfully combined wheat and stock raising, and each year he takes a number

of steers to the Old Country. This venture begun in a small way, is awaking the farmers to the possibilities along this line, and promises to open up a new trade, which will prove exceedingly helpful to the whole West.

The face of James Duthie will appear familiar to all who reside in the Prairie Province. Coming to the college in '79, Mr. Duthie took the associate course, and then spent a few years in Ontario, gaining practical experience. In 1882 he went West, and has since resided at Hartney, Manitoba. He owns eleven hundred acres and his large herd of Shorthorns has won him many red ribbons and an enviable reputation as a feeder and breeder of high-class stock.

J. P. Cleal, '02, better known as "Yank," and his brother Gordon, '04, are



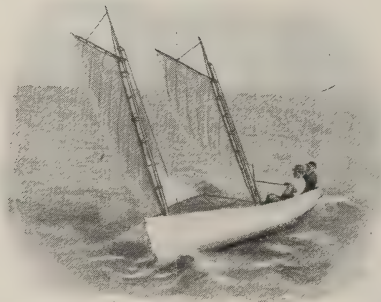
A. P. KETCHEN.

ranching at Airdrie, Alta. "Yank's" faith in the West is unshaken and he predicts a great future for it.

Montgomery and Baker, '07, have left their Eastern homes and gone to make homes in the West.

A. P. Ketchen, '03, is a graduate who has been making rapid progress since leaving the O. A. C. On securing his degree, he accepted the position of Assistant Live Stock Commissioner at Ottawa. Journalistic work appealed

to him, and when offered a position on the editorial staff of the Nor'-West Farmer, he accepted, and is now situated at Winnipeg. Since his connection with it, the Farmer has gone ahead by leaps and bounds. We must congratulate our contemporary on having such a man as Mr. Ketchen on its staff.



Te in Gradum Ituri Salutamus.

To the tune of "The Laird o' Cockpen."

Farewell to the halls that have sheltered us long—
Come all ye fourth-year men, come join in my song,
Of the men that have labored, our pathway to smooth,
We'll sing with good will, tho' in accents uncouth.

There's J. B., with his plats and his drawings to scale,
His results tabulated with inf'nite detail.
If e'er in the after days, method we show,
We'll think of J. B., for to him we it owe.

Lochhead too, we'll miss thee, for who'll fill thy place?
And invest every fungus with beauty and grace?
In fond recollection we'll hold every spore,
When Guelph and the O. A. C. know us no more.

And Day of the bacon hogs, Mac's special charge,
We'll drink to thy mem'ry a bumper full large;
With thine able lieutenant's we'll couple thy name,
All honour to Arkell, of stock-judging fame.

While Zavitz enthused o'er his big yields of grain,
No trouble too great, good results to obtain;
From Mendel to Burbank and Hugo de Vries,
He led us in quest of plant pedigrees.

And Harcourt, the chemist—bewildered were we,
When he told how of alcohols thousands there be;
While Gamble, the tactful, most genial of men,
Traced diabolic process, no mortal could pen.

From Graham did we learn all the tricks of the trade,
How a rooster's tail may to order be made,
That the colder the house, the better hens lay,
And you needn't feed them above once a day.

—Iain Baig.



THE College year is over. Scores of students, relieved of study and the anxiety and strain of examinations have dispersed to their homes, or to fill positions of one sort or another, in various parts of the world. A number of the boys, however, remain at the College—the senior or graduating class to complete their course, and write their final exams for the B. S. A. degree; the juniors to take the Nature Study course, which is regularly required of each junior year at the end of their regular course; a number of the freshman and sophomore years, remain to assist in the work of the various departments of the college.

AN "AT HOME."

On Friday evening, May 4th, an "At Home" was given in honor of the teachers from different parts of Canada, who are with us to take the Nature Course, and whose home during the six weeks of the course is at the Macdonald Hall. In addition to the Nature Course students and the regular students now in residence, there were also present, a number of the staff and faculty. Music for the occasion was furnished by Thain's Orchestra. Promenading was the feature of the evening. Refreshments

were served in the dining hall from 9 o'clock till 10:30. Needless to say, an enjoyable time was spent by all who were present.

E. Thompstone, B.Sc., Demonstrator in Biology, has resigned his position on the staff, and has accepted the position of Assistant Director of Agriculture in the Civil Service of India, at a salary more than double that which he has been receiving here. He sails in June from Montreal for England, remaining there two months and sailing thence to Bombay, his headquarters, via the Mediterranean and the Suez Canal.

Before leaving Guelph, Mr. Thompstone is to take to himself a wife and companion in the person of Miss May Strachan, at present a teacher in the Consolidated School here. While here Mr. Thompstone has proven himself a most efficient and capable member of the staff, made for himself a host of friends, and has always taken an active interest in everything tending to make the O. A. C. a more bright and enjoyable home for its students.

The Review extends heartiest congratulations and good wishes to Mr. Thompstone in his new departures, and wishes him and his prospective bride all joy and prosperity.

The new Mechanical building, now in course of erection, presents at present quite a busy scene. The basement walls are nearly completed. It is expected that by September the edifice will be ready for use. This building supplies a long-felt want. Heretofore, our students have been more or less handicapped by a lack of familiarity with the construction and operation of some of the new and heavier types of farm machinery. Manual labor on the farm is being greatly lightened and facilitated by the ever-increasing improvements and inventions in connection with farm machinery. The new building will give students an opportunity of taking apart, putting together and operating, under a skilled mechanic, the machinery with which ment will be used for the storing of machinery; the first floor for instruction on this machinery; the second floor for paint shop and carpenter shop and manual training apparatus, and the third for a class room.

This year an exceptionally good course in Nature Study is being given, as shown by the calibre of the staff, the large attendance of students, and the interest taken in the course generally. A tramp is taken each morning at 4:30 a.m., for the purpose of studying bird-life. Under the able direction of Professor Sherman and Mr. Jarvis, a rather extensive course in Ornithology and Entomology is being given. The Botany is in charge of Mr. Thompstone. Monday, Tuesday, Wednesday and Thursday mornings are given to Nature Study proper. On Friday an excursion to the outskirts of Guelph is made. The first four afternoons of each week are spent by the regular O. A. C. students in the departments in which they intend to specialize in their fourth

year. Saturday is also given to this work.

Results of the Final Examinations.

On May 7th there appeared on the Official Bulletin Board a list indicating in a general way, the standing of each student in the first and second years. in connection with the final exams. written in April. The following is the list:

First Year.

1, Sirett; 2, Webster; 3, McLaren; 4, Thompson; 5, Turney; 6, Waddell; 7, Strong; 8, McGill; 9, Cutler; 10, Cooley; 11, McEwen; 12, Lawrence; 13, Duff; 14, Allen; 15, R. H. Jenkinson; 16, Angle; 17, Law; 18, Jackson; 19, Lang; 20, B. G. Palmer; 21, Irvine; 22, D. McKenzie; 23, Boddy; 24, Lewis; 25, Fraser; 26, Holterman; 27, Feather; 28, McRae; 29, Smye; 30, Brownridge; 31, Ingram; 32, M. Campbell; 33, Moore; 34, Hodgins; 35, Fowler; 36, Cunningham; 37, Bray; 38, W. E. Palmer; 39, Stafford; 40, Edwards; 41, Tothill; 42, Duffy; 43, Hoy; 44, Allan; 45, Timpany; 36, Shopland; 47, Savage; 48, Bell; 49, Treherne; 50, Carr; 51, Manton; 52, Laughland; 53, Reyles; 54, Diaz; 55, Oliver; 56, Dawson; 57, Prinsep; 58, James; 59, Iwanami; 60, Yeo; 61, Leslie; 62, Potter; 63, McConkey; 64, W. L. Kerr *(11); 65, Boutwell; 66, Foyston *(3, 12); 67, Tweltridge; 68, Murray Browne *(11, 12); 69, Burritt; 70, Ryan; 71, J. A. Campbell; 72, Stock *(10, 11); 73, Sproat *(2, 4); 74, LeClair; 75, Semon *(2, 8); 76, deCordova *(6, 12); 77, Moodie *(2, 12); 78, Sharman *(5, 12); 79, N. D. McKenzie; 80, Robinson; 81, Evens *(2, 5); 82, McIntyre *(4, 12, 11); 83, Morewood *(1, 2); 84, Cooper; 85, A. D. Campbell; 86, Walker; 87, Coke; 88, Stevenson.

The above who are marked thus * are

required to take supplemental examinations in the subjects indicated.

1, Grammar and Composition; 2, Mathematics; 3, Book-keeping; 4, Chemistry; 5, Botany; 6, Zoology; 8, Dairying; 10, Apiculture; 11, Veterinary Anatomy; 12, Veterinary Materia Medica.

Second Year.

1, Arkell; 2, Slater; 3, Rose; 4, Curran; 5, Knight; 6, Caesar; 7, Gilmour; 8, Frier; 9, Warren; 10, Wolverton; 11, Langley; 12, Salkeld; 13, Row; 14, Wheaton; 15, Patch; 16, Murray; 17, Hayes; 18, Barnet; 19, Steckley; 20, Brown; 21, Austin; 22, Carpenter; 23, Hodson; 24, Kerr; 25, Jewson; 26, Hare; 27, Graham; 28, McKenzie; 29, Walker; 30, McLennan; 31, Bowes; 32, Glidden; 33, Sirett; 34, Middleton; 35, Owen; 36, Weaver; 37, Nag Tany; 38, Foster *(3, 4); 39, Goulding; 40, Johnson *(4, 5); 41, Woods; 42, Young *(6); 43, Ballantyne *(2, 4); 44, Evens; 45, Bengough *(6); 46, Gregory *(2); 47, Lawson *(4); 48, Chisholm *(4, 10); 49, Harvey *(2, 11); 50, Hibberd *(12); 51, Baker *(13, 8, 5).

Those marked thus * are required to take supplemental examinations in the subjects indicated.

2, Bacteriology; 3, Plant Physiology; 4, Dairying; 5, Veterinary Pathology; 6, Electricity; 8, Organic Chemistry; 10, Botany; 11, Agricultural Chemistry; 12, Thesis; 13, Animal Chemistry.



T. R. ARKELL

Winner of the Governor-General's Medal.

SCHOLARSHIPS.

First Year.

English and Mathematics, H. C. Duff, Dobbington, Ont.

Physical Science, H. B. Webster, Science Hill, Ont.

Biological Science, A. McLaren, Edinborough, Scotland.

Agricultural Science, H. Sirett, Rosseau, Ont.

Medal, Second Year.

Governor-General's Silver Medal—First in General Proficiency, 1905 and 1906, T. R. Arkell.

Prizes, Second Year.

First in General Proficiency, first and second year work, theory and practice, T. R. Arkell, Arkell, Ont.

Essay, "Improvement of the Farm Homestead," D. M. Rose.

Athletics

WITH the exception of the last, all the articles of the year have been relative of things done, but the concluding one must of necessity be made up largely of visions, as one would have to receive the gift of prophesy to clearly state what would be the accomplishments of the next year. We may be forgiven, though, if our grasp of the future seems too eager, as the progress of last year would warrant a still higher hope for next year.

However, without further preamble, let us try to pierce the obscurity of the future with the searchlight of our present knowledge, and relate the prospects it calls forth.

It has been proposed that we enter a league with St. Jerome's (Berlin), Woodstock College, and Western University (London). This seems a forward step; for last year our team was certainly out of its class in O. R. F. U. Intermediate. An effort was made to enter our team in the Junior series, but the application was refused. This "Western" League ought to prove an interesting one. It puts our team with others of its own class, and gives us a competitive chance. Woodstock College has, for some time, had a strong team. Indeed, football men here are agreed that they could keep us very busy on the field. They have had some good husky players on their team in the past.

St. Jerome's had a team in Junior O. R. F. U. last year. The team our fellows met in hockey at their college this year would prove a pretty good lot of

men. And they have beaten a team sent from Guelph City and College for the last couple of years. They ought to put out a team this year which will prove "worthy of our steel."

It is impossible to state just what London may be able to do. There is a school of medicine and a divinity college included in the university; they have a considerable number of students and ought to be able to put out a fair team.

The idea of the formation of this league originated with Fairbairn, who is football manager for next year. His work in hockey last year was progressive, and this proposition promises that he will live up to his reputation as a "hustler." He is going to take a trip out to the three colleges we have mentioned, and if the league can be formed, he will organize it, provided it promises well. Of course, it is not possible at this stage to say what will come of the new league, but from what we have said, it may be surmised that the prospects are for a good, new and interesting league.

In view of the possible formation of this league, let us consider what are the football possibilities for this college. First of all, this college would have a good chance in Inter-College Intermediate. In this series are 'Varsity, McGill and Queen's, with a couple of other colleges from Toronto. The old scrimmage game is played in the league. That is what puts it out of our reach. Seventeen men's expenses to Kingston or Montreal would not be light. It would cost us about \$400 or

\$500 to play in such a series, so, of course, this is out of the question. Then again the college would have a good competing chance in the Mulock Cup series. But as is well known around college, we are not eligible in this. The cup was donated primarily to bring out material for 'Varsity Seniors and Seconds. We used to compete for the cup, and for a time it looked as if O. A. C. might run off with it any time. This decided 'Varsity men to rule us out of the competition, because, of course, on account of our location at a distance from the central college, our men cannot play in the university team. Hence, it is altogether the circumstance of our location which disqualifies us for Mulock Cup. Were it not for that we should have every right to compete. Lastly, this college would be in class with several Toronto colleges, which are not too busy in other leagues. Although no effort has been made to form a league, such would, no doubt, be possible. But the executive felt there was great possibility in this Western League. It offered luring possibilities of growth and development. It promised to improve football at all four of the colleges concerned. The league, too, would be entirely new, and once organized, might prove a permanent success. So it was decided to make the effort to organize. And if Fairbairn succeeds in the inauguration of a successful Western Football League, he will deserve hearty praise.

In this consideration of our football possibilities we have not mentioned O. R. F. U. at all. Our team is, of course, eligible to the intermediate series, as they were last year. But while we do not fear defeat, we proved last year that this series does not give us a fair

fighting chance; and again, as has been said, we are not likely to be allowed to enter junior O. R. F. U. Hence, the intermediate series is our only possibility in this Union. If the effort to form the Western League fails, it will be time to consider these other openings, Intermediate O. R. F. U. or a Toronto league. But at present we may assume that the new league will be formed. And if formed, the snapback will be the style of game played. Our fellows know this game, and yet, in view of the remote probability of a Toronto league, the practice given last year on the scrimmage game will not be amiss; whichever league materializes, we have an equipment for it.

Now, let us see what are the prospects of having a good team for the ensuing season. The majority of the old team will be back. There will be about 42 men in the college who will know the game. These form the personnel of last year's first, second and third year teams. We still have such ones as Treherne, Hoy, Murray, Sirett, and others, from whom we may reasonably expect good work. Lastly, we have a first-class captain in Norman Foster. He knows the game, is a good quarterback, and understands the art of captaining a team fairly and wisely. With these qualifications, we see no reason why a splendid team should not be placed on the field next fall. We have a good fullback in Treherne, and if we cannot "scare up" a halfback line with the material from which we can pick, we ought to take a back seat.

The chief lack we have felt hitherto is that in the makeup of our teams we have numbered few good, strong, dependable kickers. To remedy this, Hibberd proposed that new balls should

be purchased and lent to the most likely individuals to take home for practice. Accordingly these balls were purchased, and at least two men will receive them. These two were the only ones who would have opportunity for summer practice.

We hope that every one who contemplates playing football next season will train as much as possible this summer, and return prepared to stand all the rough and tumble and hustle of the Rugby season. If this reaches the ears or eyes of anyone who intends to enter this institution next fall, and who is athletically inclined, we hope he will "read, learn and inwardly digest," and prepare himself to uphold the honor of '10 on the football field. He may not understand Rugby, but the main purpose is to acquire a good wind and good muscle, the rest will be easy; besides he will need all his muscle for other things, as the sophomore year promises to be numerous and heavy, so that in any case it is advisable to train. The Western League, if formed, offers a possibility in hockey; so if the same policy is followed as in football, we may look to new interest on the ice. The City League proved a success this year, so it would be previous to say which series our hockey team will enter.

We do not know whether St. Jerome's and the other two play basketball, but a campaign could easily be started to arouse enthusiasm for basketball in these colleges. But there is no fear of a dearth of games, as we have an energetic manager.

Don't forget the outdoor sports. They are held at such a time that unless the fellows train in the summer there is not much chance for extra good records being made. In a college as large as ours, there must be many men good enough in certain branches of athletics to make the list of entries a large one, and to allow of good competition. Why should Kerr have the walkover in outdoor sports that he undoubtedly has? He is a good man, and

probably would win in any case. But make him hustle to win. Find out your own particular line; it is better to win one good first and have the satisfaction of knowing that you are the fastest runner, or the finest hurdler, or the best jumper, or the best in your own particular line, than enter every event and get a few thirds or seconds, or nothing at all. Train systematically in that branch and come back prepared to "go the limit."

Having once entered, don't "drop out," just because there is a queer feeling of emptiness above the belt line. Too many take that for a sign of illness (because they wish to), it is only nervousness, and will wear away as soon as your chance comes. Then, if we have good enough men, we may send a team to Toronto for the inter-collegiate sports. Remember this, and think of the feeling of elation that will be yours if you get a chance to show your ability on the university track. Just hold that goal before you, and do your best to try for the honor of upholding the glory of your Alma Mater at Toronto.

We are pleased to see that the committee have determined to keep Hibberd. He is a good man, and the advisability of getting him has easily been vindicated by the standard that has been attained owing to his presence amongst us. Even supposing that no material results had appeared this year, the benefit of his experience to the committee is acknowledged, and the college spirit that has been aroused is largely due to his efforts.

Besides we cannot expect (as has been stated) a man to perform wonders with a team in one year. If Hibberd left us now we should have the same difficulty with the next man, and if we kept in the same course we would never get any further ahead. Hibberd has got the college spirit himself, and as he has found his footing, we may expect a big improvement in his work. So that we firmly believe that the athletic executive are fully justified in retaining the services of Mr. Hibberd.

Macdonald

SOME NATURE STUDY NOTES ASARABACCA OR WILD GINGER (Genus *Asarum*).

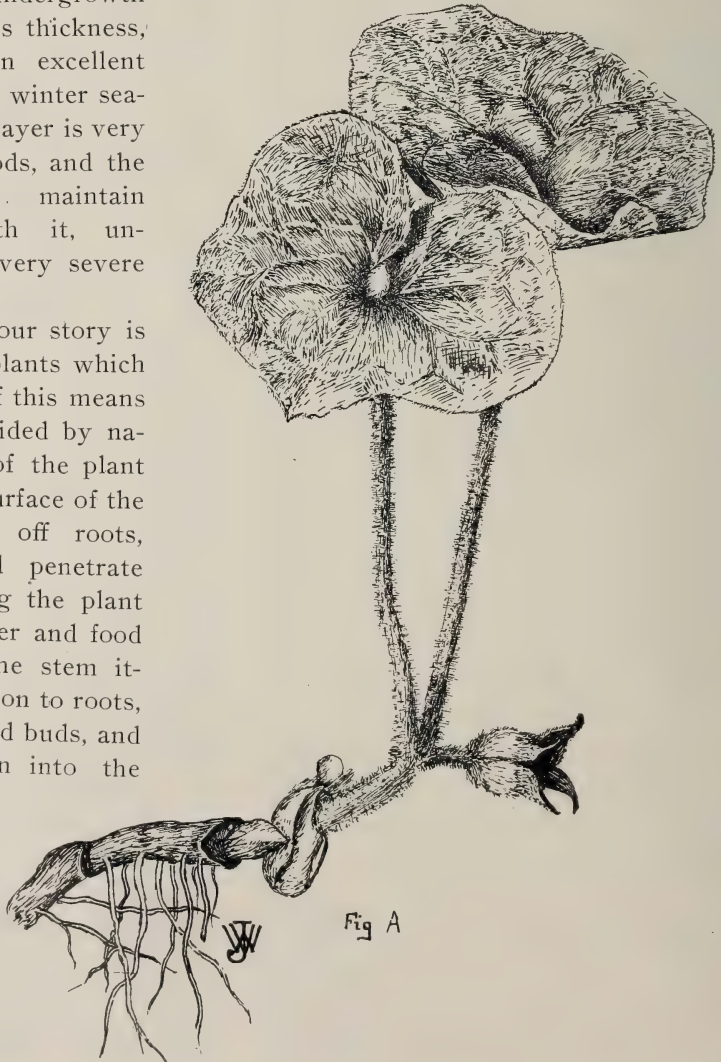
By E. THOMPSTONE, B. SC.

IF you are a wanderer through moist woods in early spring, you must have observed this singular little plant pushing its large, green leaves boldly upright through the moist dark-brown carpet of dead leaves, fallen from the trees above.

In forest regions the foliage which falls from the trees and overspreads the ground and undergrowth to a greater or less thickness, appears to form an excellent blanket during the winter season. This foliage layer is very thick in some woods, and the sheltered plants maintain themselves beneath it, unfrozen, even in very severe winters.

The subject of our story is one of the many plants which avail themselves of this means of protection provided by nature. The stem of the plant creeps along the surface of the ground and gives off roots, which branch and penetrate soil beneath, fixing the plant and taking in water and food from the soil. The stem itself bears, in addition to roots, scale-like leaves and buds, and may also go down into the soil, when it is known to botanists as a "rhizome."

Each spring it progresses a short distance and produces, near its apex, one or two (usually two) large



kidney-shaped or heart-shaped leaves on long petioles or stalks. The young stems, leaf stalks, and leaves are densely covered with soft woolly or downy hairs but on examining the older parts of the stem we find that not only have they lost practically all their hairiness, but the foliage-leaves and scale-leaves have also disappeared, leaving on the stem only the marks of their attachment, called "leaf-scars." The end of each year's growth is marked by the large scars of the foliage leaves, so that there would be no difficulty in counting the age of any part of the stem in the same manner as we would count the age of the twig of a tree, by the bud scars.

Moreover, from the under surface of the older parts of the stem, roots are sent down into the ground, but the young stem is somewhat curved upwards, so as to expose the leaves to the light as much as possible, and on it roots are not developed until the flowering season is over. When they do appear, however, they drag down the upward-curved stem until it also touches the ground.

Unless we are already familiar with this plant, there is nothing to tell us when it has reached its flowering season, for it hides its head upon the ground as if unwilling to challenge comparison with its more brilliant brethren; and many a wanderer through rocky woods in early May quite overlooks its shy, shamefaced blossoms, which are frequently completely hidden beneath the carpet of leaves. It is the exception rather than the rule of plants to obscure their flowers from the view of insect visitors, and we shall try to discover the reasons for this mysterious behavior on the part of this curious inhabitant of our woods.

The flowers are produced singly and arise on a short peduncle or flower-stalk at the apex of the shoot, between the two large leaves (Fig. A). They are usually pushed forward and slightly downwards to the ground until, as previously mentioned, they are partly buried beneath the rubbish, hence they are not easily seen by the casual observer.

The buds and flower stalks are so densely covered with soft hair that they might be described as woolly, and near the apex they are of a dull green color, tinged with red. This covering of hair found on the leaves, flowers and tender shoots is an additional protection against inclement weather.

In order to understand the interesting phenomena which take place during the flowering of this peculiar plant, it is necessary first to know something of the structure of its odd blossoms.

The flower is perfect, possessing both stamens and pistil, and the base of the flower is occupied by the more or less rounded ovary or seed-case. (Fig. IV. O). In the center of the blossom is a little projection, called the style (Fig. II., St), which expands near its apex into six short arms, which on the upper surfaces are reddish in color and more or less sticky. This surface is called the stigma (Fig. II., St), and forms the receptive portion on which the minute pollen grains must be deposited before the little seeds in the seed case can begin to develop.

The seed bag or ovary is that part of the flower which eventually de-

velops into the fruit, and if we were to cut it across we should find that it was made up of six cells or chambers, one beneath each of the short spreading arms of the style.



Fig. I

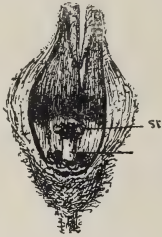


Fig. II



Fig. III



Fig. IV



Fig. V

Inside these cells can be seen the embryo seeds or ovules (Fig. IV. Ov), which become the mature seeds. Each chamber contains a number of these ovules, and they are attached to the central axis which is common to all the chambers of the ovary.

The other organs of the flower are arranged in rings or whorls around the style (on the somewhat flattened top of the ovary). To the outside is to be seen the **calyx**, made up of acutely pointed sepals, usually three in number (though four are occasionally found in the Canadian species of

this plant, *A. Canadense*), and measuring half to one inch in length.

In the bud the tips of the sepals are inflexed, and their edges are united throughout their full length (Fig. I.), but in the fully opened flower they are united by their edges for about half their length, forming a cup-shaped or bowl-shaped calyx with the acute tips of the sepals beautifully reflexed or bent back (Fig. III.). The backs of these sepals, which in the bud covered and protected the other parts of the flower, are green tinged with red, and, as previously described, covered with soft hairs, whilst the inside is colored dull olive to purplish-brown, except a broad band at the base, which is white with vertical stripes of the same color as the rest of the sepal. Particularly clear stripes are seen to cross this white band at the edges and down the center of each sepal.

If we are close observers we shall see that immediately on the inside of this outer circle, which we called the calyx, are to be found three small teeth situated between the sepals, or, as botanists say, alternating with them. These small, slender, tooth-like scales are deep red in color, and perhaps are the remnants of a former inner whorl of "petals," which, in the majority of our flowers, form the most conspicuous and brightly-colored parts, for the purpose of attracting insect visitors.

The only remaining parts of the flower to be described are the stamens, whose object in life is to produce the pollen or fertilising powder to be conveyed, as we shall see, to the stigma of another flower. These stamens are twelve in number, and are so close together that they appear to be arranged

in one circle around the style, though, in reality, they are arranged in two whorls of six in each—one whorl slightly external to the other. Each stamen is made up of a stalk or filament and two pollen bags. The pollen sacs are joined together and attached by their sides to the filament, not at its apex, but about half way down, so that a portion of the stalk projects beyond the sacs in which the pollen grains are produced in large numbers. In the young flower the stamens are bent gracefully away from the central style and protracted face downwards and outwards, like Turks at prayer, but with their backs instead of their faces towards the altar.

If we watch closely a flower bud about the time when it is ready to open, we shall see that the first change which takes place is the appearance of three fissures between the three lobes of the calyx, i. e., between the three sepals (Fig. I.). These serve as entrance-gates for the small flies, ants, leaf-hoppers, and other insects seeking access to the interior of the flower.

The stigmas, which are now ready to receive the dust-like pollen, are close below the three fissures (Fig. II.), and any insects using these openings as entrance-gates must of necessity pass over the stigmas, which are at this time more or less sticky. If they have previously visited an older flower, they usually come laden with the pollen and cannot avoid leaving a portion of it behind them on the stigma. This pollen fertilizes the ovules and causes development of the seeds.

Here we can see some possible reasons why this plant at first does not, like most other plants, advertise its blossoms to the insect world, but rather seeks protection for its odd flowers upon the ground or beneath the leaves. The class of insects which visits these blossoms is by no means the same as that which is attracted by the brilliant colorings of many of our other flowers. Butterflies, bees and moths are unknown, or possibly unwelcome, visitors to this flower. It is not specially prepared for them, and cannot accommodate them, hence it does not put forth an endeavor to entice them. Wingless, crawling insects, such as ants, and those insects, such as leaf-hoppers, small flies, etc., which, though they may be able to fly, crawl and hop about among the fallen leaves, undoubtedly play a great part in the economy of this plant.

You will probably wonder why insects are induced to pass through these openings into the flower, but if we consider for a short time, we shall be able to satisfy ourselves on this point—for color is by no means the only attraction that flowers have for insects. The emitting of a strong scent is another device for enticing insects, and though to us the flower of the ginger root has very little or no smell, the sense of smell is developed far more acutely in insects than in us. Again, though no secretion of honey (or nectar) has been discovered, insects may be able to enjoy a secretion which we are unable by ordinary methods to perceive.

Who of us has not watched ants and curious insects crawling on plants and among dead leaves, and seen them enter, either from curiosity or hunger, or to escape their enemies, into every hole, nook or cranny they met with? Could not some of these reasons be given for what at first seems unaccountable actions on the part of these six-footed animals? Since, then, the flower

does not need to be forced upon the notice of flying insects, which, indeed, could probably render it no service, it is desirable that it should be concealed as far as possible from enemies which are liable to destroy it.

After pollination has taken place, it is no longer necessary that insects should be shown the way to the stigma, so the three sepals separate at the tips, and, from being curved inwards, begin to curve outwards until they are reflexed, as already described (Fig III.). At the same time the stamens become ripe, and rise from their prostrate position until they are erect, with their backs towards the stigma. They do not all rear themselves up at the same time, but the inner circle, made up of six longer stamens, alternating with the shorter ones of the outer whorl, and, with the lobes of the pistil, rises first. A little later the remaining stamens take up their position with their backs to the stigma and the projecting filaments form a cone-shaped covering over the top of the stigma. This probably keeps insects off and prevents any more pollen reaching the stigmatic surface.

After taking up this position the anthers are seen to burst by a long fissure on their external surfaces—or as botanists would say, they “dehiscce extrorsely”—and they do this more readily if they are rubbed or knocked by some of the insects which continue to visit the flower. Thus they succeed in scattering the pollen all over the little animals’ bodies.

Now, it is a common device among our plants in order to prevent the pollen of a flower reaching the stigma of the same flower, i. e., to prevent “self-pollination,” for the stigma to be ready to receive the pollen before the latter in the stamen is ripe, or for the pollen to be all scattered before the stigmas are ripe. The latter condition is called “protandry,” and the former, which is seen in this flower, “protogyny.”

Insects passing in and out of these flowers can only receive pollen from the older flowers, the stigmas of which have already been pollinated—hence self-pollination is prevented. Can we not also add that the stamens place their backs towards the stigma for the same reason, i. e., to prevent self-pollination? After the pollen is all shed, the remaining duty of the flower is to ripen its fruit and seed so that all parts of the flower above the ovary immediately begin to wither up and disappear until only remnants remain to indicate their former existence.

The name “Wild Ginger” was given to this plant because of the flavor of its thick stem, the juice of which has a some-what arid, possibly, ginger-like flavor, and in a work on plants by Wm. Darlington, 1859, it is stated that “it is used as a substitute for ginger in some parts of the country.” It also receives the name Canada Snake-root, on account of its trailing stems, and most children are familiar with the “Little Brown Jugs,” as the flowers are called, and know where to look for them. In England it was at one time considered a remedy for headache and deafness.

Locals.

From the Tablets of Azit-Strukmi, the Scribe.

[The following, transcribed from the cuneiform characters, engraved on bricks unearthed in excavating the foundation of the new machinery hall, would exemplify the time-worn apothegm: "There is nothing new under the sun."—Ed.]

1. Nau itappint i thi sihxt yirov kingedwâd.

2. In thagri kultuaral kollejev Kuelf.

3. That afoto mênayah eppi demn ik broak out.

4. Annd thi Wyem-Siê wershawt.

5. Lykky thath lettik ekzekqutiv.

6. Then felthi tugov wawrtim prê tothi sikknez.

7. Êek thorêtorz.

8. Then wergatherto gether, lyk burrdz tothi slawter.

Al thoaz nobileeroaz hùhiad stormêd thi kitchen.

Bravin Mizhardi.

9. Thê tù wershawt.

10. Yê thoas hùresis tedthi imposton smoking,

Thêr lidurthi Dook, "rangdi-vùingwith D."

11. Thê tù wershawt.

12. Thenal hùcùd thredthi mazesov Armsbi,

Fù werthê in sùth, thêr lidur Makr —

13. Thê tùtùk thitrêl kennediward.

14. Thi grùp—thêr nêmwâs ligun.

15. And thoas hùsikkent ovthi plêg werin numberas thi graz-hopperz.

"Forward the net brigade,
Charge for the bugs," they said,
Startled and half afraid
All nature wondered.

Twentyfive boys or men,
With book and fountain-pen,
Climbing o'er hill and fen
Has someone blundered?

Their's not to make reply,
Their's not to reason why,
Their's but to classify
Bugs by the hundred.

Now, Nature Study's o'er,
Back again as of yore;
Back with their knowledge store
All homeward turning.

No more morning jaunts
Into the warbler's haunts,
No field excursion daunts
Those less discerning.

Now, no more birds for Crow,
Clowes' moustache now can grow,
Diaz and Barton know,
Which has most learning.

The other day Mr. Arkell was endeavoring to describe the color most desired in Herefords and referred to it "as a rich claret red." To make sure that he was understood, he innocently concluded with the remark: "I suppose you know what I mean." A vigorous nod of assent from the questioner seemed to indicate that the comparison was apt and thoroughly appreciated.

Mr. Thompstone—"What is the chief characteristic of the highest plants?"

Jacobs—"They all have angiosperms."

Dr. Fletcher has never seen a man who was eaten by a wolf !!

Baker must have been completely "balled" when he ventured the opinion that the juice of the conifers was pubescent.

During the Nature Study Course, Crow regularly set forth at 4:30 a.m. to look for birds. This, combined with the fact that he is President of the Y. M. C. A., confirms us in the belief that our Crow is a bird of prey.

Crow (at 4:30 a.m., preparing for a bird expedition)—"Come on Mac, get up and come out on a bird hunt."

McKenney (from the depth of the bedclothes)—"I always did have a great ambition to see a bittern, if there is such a thing, but I wouldn't get up now if all the bitterns and storks and ibises in existence were walking about on the campus."



Galt Sure Grip Shingles

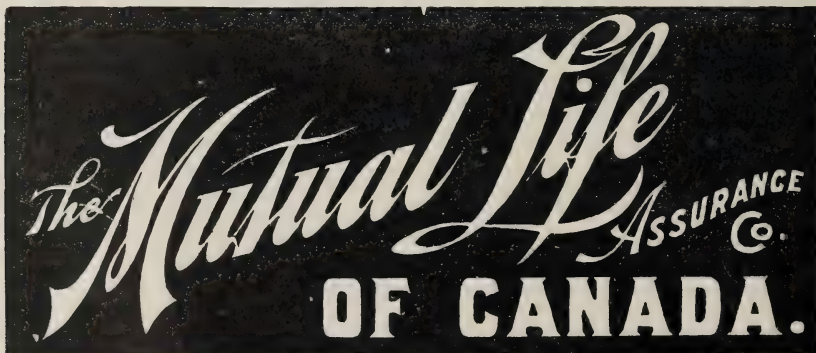
are far superior to wood or slate. Why not consider them for the new barn, house or factory? They cannot burn or warp, are easily laid and need no heavy rafters.

Worth knowing more about. Write for catalogue and Classic Kids Booklet.
This is the Sheet Metal Age.
GALT ART METAL CO. Ltd.
 GALT, ONT.

100 Per Cent

100 Per Cent

The stability of a Company may be gauged by the class of securities in which its funds are invested. Those of



are all gilt-edged, as may be seen from the following list:

LEDGER ASSETS.		PER CENTAGE.
Mortgages	\$4,265,533 86	48.22
Debentures and First Mortgage Bonds	3,245,401 89	36.68
Loans on Policies	1,017,480 99	11.50
Cash on Hand and in Banks..	261,960 60	2.96
Real Estate	56,281 08	.64
Total Ledger Assets	\$8,846,658 42	100%

R. Melvin, President.
Geo. Wegenast, Manager.

W. H. Riddell, Secretary.

Geo. Chapman, Gen. Agent.

McLean's Block, Guelph.

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THE EMPIRE CREAM SEPARATOR

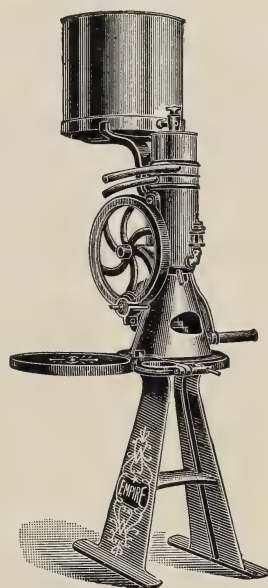
is the separator that embodies the newest ideas with the most approved methods. It is the most popular cream separator in the world—simply because it has *proved* that it does

The Best Work

Its light bowl, its simple construction, its lack of friction, its ball bearings, its great ease of cleaning, its close skimming and its durability are all explained in our

FREE DAIRY BOOK

We want you to read it and study it thoroughly then give our machine a trial which won't cost you anything but which will show you why there are so many satisfied EMPIRE users in Canada to-day.



EMPIRE CREAM SEPARATOR COMPANY OF CANADA, Limited

TORONTO, ONT.

Ocean Steamship

Tickets



SAILED ON ALL LINES TO ALL PARTS OF THE WORLD

JOHN DAVIDSON

Market Square, Guelph, Ont.

Slater's shoes may be all right, but most of us are glad we were not in them on Good Friday.

A public school magazine contains this announcement "The editor will be very pleased to hear of the deaths of any of the old boys." No doubt the old boys will oblige the editor from time to time.

Waterloo Mutual Fire Ins. Co.

Established in 1863

HEAD OFFICE — WATERLOO, ONT.

Total Assets, 31st Dec., 1905 - - - \$514,000

Policies in force in Western Ontario, over 30,000

FARM INSURANCE A SPECIALTY

GEORGE RANDALL,
President.

WM. SNIDER,
Vice-President

FRANK HAIGHT, Manager

T. I. ARMSTRONG, } Inspectors
R. T. ORR, }

The Traders Bank of Canada

ASSETS TWENTY MILLIONS (\$20,000,000)

IT IS THE
Farmers' Bank



NEXT DOOR TO
The Post Office

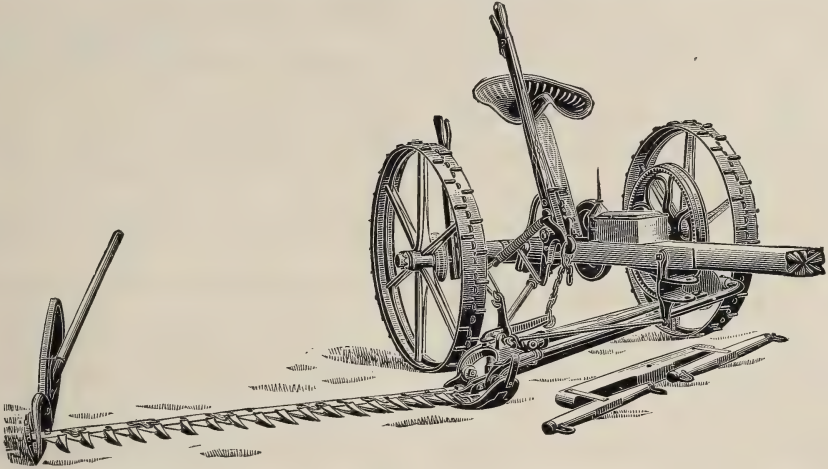
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SPECIAL ATTENTION PAID TO FARMERS' BUSINESS

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The Most Favorable Rates and Terms Given

A. F. H. JONES, Manager

A Good Mower



is the farmers' best friend in the hay-field, one that he can rely on to cut ALL his hay, and that will do his work under any condition that his land may present. Such a Mower is the **Frost & Wood New No. 8**. We guarantee this machine to cut your hay **satisfactorily** no matter what the existing circumstances may be and under which it has to work.

“**QUALITY**,” that enviable commodity found throughout our entire line of Farm Machinery, sticks out of every feature of this machine. The **Internal Gear**, the **Spring Foot-Lift**, the **Light Draft** and **Absence of Neckweight** are all features worthy of your consideration.

See what our Catalogue says. It's free.

The Frost & Wood Co., Limited

Head Office and Works : SMITH'S FALLS, ONT.

Craigieburn Stock Farm

**CLYDESDALES, SHORTHORNS
and SHROPSHIRE**

Imported and Canadian Bred
Young Stock Always For Sale

FOR PARTICULARS APPLY TO

G A. BRODIE

BETHSEDA, ONTARIO

Stations:

Stouffville, G. T. R.; Claremont, C. P. R.
Telephone service from stations to residence.

CLYDESDALES

**SMITH & RICHARDSON
COLUMBUS, ONT.**

Importers of Clydesdale Horses

Now on hand a great number
of Stallions and Mares, among
them the Toronto Show Winners

R. R. Stations—G. T. R.—Oshawa,
Brooklin
C. P. R.—Myrtle

LONG DISTANCE PHONE at RESIDENCE

N. DYMENT

Ayrshires

Hickory Hill Ayrshire Herd

CLAPPISON, ONTARIO

CHAS. S. AYLWIN, Freeman, Ont. Ayrshires
Stock always on hand.

P. D. EDE, Woodstock Station. Stock for
sale from Record Cows.

GEORGE RICE, Tillsonburg, Ont. Holsteins.
Young Stock for Sale.

F. MARTINDALE & SON, York, Ont. Short-
horns and Berkshires.

PINE GROVE STOCK FARM

Rockland, Ontario, Canada

BREEDERS OF CHOICE

**SCOTCH SHORTHORNS
and SHROPSHIRE**

W. C. EDWARDS & CO., Limited

PROPRIETORS

JOSEPH W. BARNET, Manager

Alva Farm Guernseys

Awarded First Prize at Montreal
for Breeder's Young Herd

Young Animals of Merit For Sale

Pedigrees and particulars to parties
wishing to purchase, address:

SYDNEY FISHER, Knowlton, Que

J. DRYDEN & SON

Maple Shade Farm **BROOKLIN, ONTARIO**

Home of the oldest and largest herd
of Cruickshank Shorthorns in America.
Shropshire flock founded 1871.

Station—C. P. R., Myrtle, 3 miles.
G. T. R., Brooklin, 1½ miles.

W. M. SMITH, Scotland, Ont. Ayrshires.
Poland Chinas, Duroc Jerseys.

JOHN MORGAN & SONS, Kerwood, Ont
"Cherry Grove Stock Farm." Shorthorns
Young Bulls and Heifers on hand for sale.

FOR SALE

Okanagan Fruit Ranch

Forty acres. Ten in peach and
apple trees. All flumed. Twenty
good arable land. Good buildings,
good water, plenty of wood. Only
five miles from town. Address

Mackray & Bowden
Kelowna, B. C.

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Oak Lodge Yorkshires

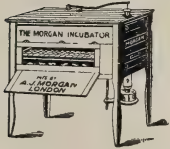


The Profitable
Type of Bacon
Hog.
Stock of all ages
for sale at all
times.
Quality Guaranteed.

Long Distance Phone at the Farm

J. E. BRETHOUR
BURFORD, ONTARIO

INCUBATORS and BROODERS



Poultry Supplies
of all kinds
Large Catalogue
Free

A. J. MORGAN
LONDON

The two Nature Students who tried to enter the dining-hall without meal-tickets found that "butting-in" was hard work when the door was guarded by Bunting. Not until they interviewed Mr. Springer did they realize that a joke had been sprung.

The difference between "glabrous" and "ciliate" is exemplified in the Sophomore and Senior upper lips. With the approach of Convocation the ciliate variety is noticeably increasing.

One of the Fourth Year absent-mindedly stated on his exam. paper that Herefords were usually fattened at 18 years. The examiner would probably pardon the error if he had ever enjoyed (?) four years in the college dining-hall.

Federal Life Assurance Company

HEAD OFFICE,

HAMILTON

Capital and Assets.....	\$ 3,300,000.00
Policies Issued 1905.....	\$ 3,328,177.08
Business in Force.....	\$ 17,292,776.11

DAVID DEXTER

President and Managing Director

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DUNLOP
Horseshoe
PADS

*Save a horse from falling in
slippery places — prevent
balling on the hoof in loose
snow—keep the hoof healthy*

PUT ON BY
ALL BLACKSMITHS

DUNLOP
TIRE & RUBBER
GOODS CO. LIMITED

HEAD OFFICE AND FACTORY:
Booth Ave., TORONTO

Recent publications by Nature Students. Largely compiled from the authors' own experiences:

"Shooting Wild Birds," by "Pat" Twigg. This is a remarkable book, by a remarkable sportsman, remarkable in that he has successfully demonstrated that five shots are necessary to kill a blackbird.

"Botany Made Easy," by Clowes.

"The Grebe, Its Haunts and Habits," by "One of the Fair Sex."

"Crayfish," by W. G. Bunting. A most valuable treatise, dealing particularly with their value as an addition to soup.

"The Price of a Door," by Slater. This is a volume of interest, especially to housebuilders and homemakers.

"Mustard Plasters and How to Use Them," J. F. Monroe.

**Men's
Goods**

E. R. BOLLERT & CO.

**Ladies'
Goods**

THE Faculty, Students of the O. A. C. and Macdonald Institute will find this store ready to serve their wants to the best advantage. We are pre-eminently a Ladies' and Gentlemen's Outfitting and Furnishing Store. No matter what your needs this store is ready to supply them with good goods at moderate cost. We have always been favored with a large business from the personnel of the College. We shall pay special attention for its continuance and increase.

Men's Section

Fine Ordered Clothing at Moderate Prices.
Fit-the-form Ready-to-wear Clothing, very good and very cheap.
Best Styles of Hats and Caps at closest prices.
Up-to-dhite Shirts. Collars, Ties, Gloves, and Fancy Furnishings, not at fancy prices.
Underwear, Hosiery, Etc., grand values.

Ladies' Section

Dressmaking at very reasonable rates.
Ready to wear Coats, Skirts, Blouses, Etc., in great variety of new things.
MILLINERY—All the Novelties of a first-class Millinery Business constantly received
The Underwear and Furnishing Stocks are crowded with good goods at low prices.
Belts, Collars, Gloves, Hosiery, Handkerchiefs, Etc., Etc.

**25 and 27
Wyndham St.**

E. R. Bollert & Co.

**25 and 27
Wyndham St.**

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An Invitation

FOR ICE CREAM OR ICE CREAM SODA



may be modestly accepted, but the soda itself will be none the less enjoyable. The

Ice Cream Soda

we serve is by far beyond the ordinary. The soda itself is the best that can



be made and we make it still better by using Ice Cream of a quality seldom used in soda.

The Kandy Kitchen

Lower Wyndham Street

GUELPH, ONT.

ZENOLEUM DISINFECTANT AND DIP

USED AND ENDORSED BY

ONTARIO AGRICULTURAL COLLEGE
IN ITS SEVERAL DEPARTMENTS

THE CANADIAN GOVERNMENT
AT ITS ARMY BARRACKS

CANADIAN PACIFIC RAILWAY CO.
THROUGHOUT ITS SYSTEM

PROMINENT VETERINARY SURGEONS
IN THEIR DAILY PRACTICE

LEADING LIVE STOCK MEN
ALL OVER THE WORLD

ON SALE AT EVERY DRUG STORE
In Tins 25c. - 50c. - 90c. - \$1.50 - \$6.25

WRITE FOR FREE BOOKLETS
Zenner Disinfectant Co.
WINDSOR, ONT. DETROIT, MICH.

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A Semi-Monthly

*The Paper for the Farmer whether
a Specialist or General Farmer*

Information gleaned from the most
reliable sources. Carefully edited, well
printed and profusely illustrated :

ONE YEAR, 60c.

TWO YEARS, \$1.00

A Sample Copy on Request

SPLENDID INDUCEMENTS TO AGENTS

The Farming World

90 Wellington St. W. — TORONTO

CHOCOLATES

ARE
FULL WEIGHT

G. B.—CHOCOLATES—G. B.

are put up in ½ lb., 1, 2, 3, or 5 lb.
packages. Each box contains full weight
of chocolates without including weight
of box, paper or packing material.

*The new "EVANGELINE" box
is a dainty package*

GANONG BROS., St. Stephen, N.B.
Limited

A. B. PETRIE
SOLE AGENT IN GUELPH

The Bond Hardware Company Limited

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If
You
Require
Anything
in
Hardware
or
Sporting
Goods
Let
Us
Serve
You

Our Prices Are Always Right

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Men's Furnishings

JUST TO REMIND YOU

That I carry one of the largest and most select stocks of Hats, Shirts, Ties, Socks, Collars, Underwear and Men's Furnishing Goods in the city.

ORDERED CLOTHING

I have a select stock of **Suitings, Overcoatings and Trouserings** to select from. Styles, Trimmings, Fit and Workmanship the very best, and prices as low as any in the trade. Our motto is: "The best possible value for the least money." All goods marked in **PLAIN** figures and **ONE PRICE TO ALL.** Be sure you come to **73 Wyndham Street** for your Furnishings and Clothing.

R. E. NELSON

Next Traders Bank.

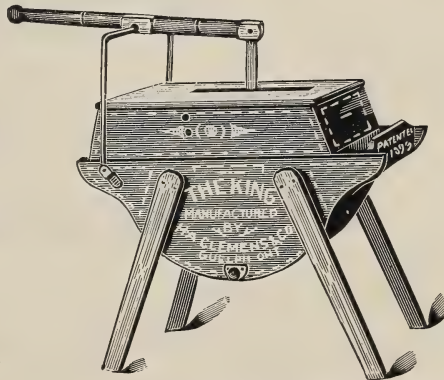
Men's Furnisher, Hatter and Fine Tailoring.

The King Washing Machine

Wholesale and Retail
Dealers in

**LUMBER
LATH and
SHINGLES**

All Kinds of
BILL STUFF, Etc.



Manufacturers of

**DOORS,
SASH,
FRAMES.**

All Kinds of

**BUILDING
MATERIAL.**

THE H. A. CLEMENS CO., LIMITED

MANUFACTURERS OF

WASHING MACHINES, STAIR BUILDING and INTERIOR FITTINGS A SPECIALTY

Phone 50.

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**A SQUARE DEAL FOR
EVERY MAN**

THE NEW STORE FOR
MEN'S AND BOYS'
CLOTHING
AND FURNISHINGS

EVERYTHING NEW
EVERYTHING RIGHT

**THE STORE FOR STYLE
AND QUALITY**

EVERYTHING THAT
WOMEN, GIRLS AND
CHILDREN WANT
TO WEAR

Also Carpets, Curtains, Draperies and
Furnishings for the House

Earliest with the Latest Things.
Fairest Price on all Things.

Nothing that is not Good.
'Most Everything that is Good.

G. B. RYAN & CO.

UPPER WYNDHAM STREET. We Do What We Say.

**The Canadian Bank
of Commerce**

Established 1867. Head Office, Toronto
B. E. WALKER, General Manager

Capital (paid-up) \$10,000,000
Rest - - - 4,500,000

GUELPH BRANCH

A general banking business is transacted.
Bankers for the Dominion Live Stock Association.
Farmers' notes discounted
Drafts issued payable at all points in Canada, and the
principal cities in the United States, Great Britain,
France, Bermuda, etc.

SAVING BANK DEPARTMENT

Deposits of \$1.00 and upwards received and current
rate of interest allowed.
Interest added to the principal at the end of May
and November in each year.
Special attention given to Collection of Commercial
Papers and Farmers sale notes.

J. M. DUFF, - Manager

R. B. Kennedy



PHOTOGRAPHER



The best place to get a good Group
Photograph or a Portrait of yourself

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The Orchard and Fruit Garden

BY E. P. POWELL

A thoroughly practical book. It will be a welcome volume and almost indispensable addition to the library of any person interested at all in fruit raising, from the suburbanite with but a few trees and vines on his land, to the experienced nurseryman. It is the only book that deals in at all a popular way with the selection and cultivation of fruits. It tells what are the favorite varieties of each fruit, what varieties are likely to thrive best in any locality, and gives much valuable information on methods of cultivation and ways of protecting each from the pests and diseases likely to attack it.

The author is one of New York's prize fruit-growers, and has made his own orchard a model of correct cultivation and productiveness, as well as a remarkable success from a financial point of view.

Cloth, Illustrated, \$1.50 Postpaid.

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PUBLISHER

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Go to Petrie's Drug Store

for your

**Photograph Supplies,
Films, Papers,
Plates, Mounts, etc**

Developing and Printing done. Only expert workers employed in Photo Department. LET US DO YOUR PRINTING FOR YOU.

Remember the Place.

PETRIE'S DRUG STORE

Guelph, Ont.

Show Me

Not the figure of a man painted on the fence, not the cut of a man in the newspaper or magazine, but show me the style, fit and finish, in short, show me the **goods** I am paying for,—thus speaks the smart buyer. In reply, **we are on the spot** and can show style and value in fine tailoring not excelled in Canada.

Keleher & Hendley

Hawes Hats Dr. Deimel's Underwear
Loyd, Attree & Smith's Neckwear

THE LITTLE TAILOR STORE

COLLEGE MEN

Are usually particular about their appearance. They demand character in their clothes.

We make the kind of Suits and Overcoats that give a man that "well-dressed" appearance so much desired.

We make the Clothes to fit the man; TAILOR individual style and shape into them.

ABOUT OUR PRICES

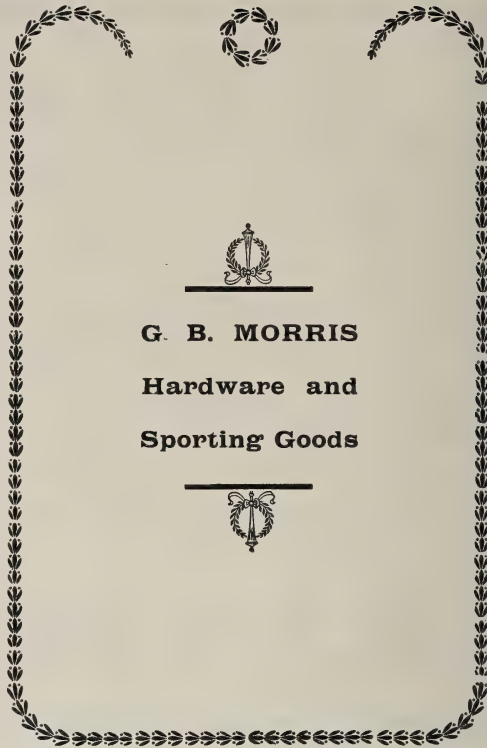
Being on a side street, our store rent is very small compared with main street rentals.

It is this combination—a big business done in a small store, with very light expenses—that makes it possible for us to turn out such high grade work at prices so much less than other tailors have to charge you.

Tweed and Worsted Suits	Blue and Black Serges
\$15 to \$25	\$18 to \$27
Overcoats \$16 to \$25	Trousers \$4 to \$7.50

R. J. STEWART

Opposite Knox Church, Quebec Street



G. B. MORRIS

Hardware and

Sporting Goods

McKEE'S DRUG STORE

MACDONALD INSTITUTE TEXT BOOKS

McLellan's Phychology	\$1 00
Food and Dietetics	3 00
Cook Book— <i>Farmer</i>	2 00
Elementary Chemistry	1 00

NATURE STUDY DEPARTMENT

Sylvan Ontario	\$0 40
H. S. Botany	1 00
Scienc- Note Book	35
Plants— <i>Coulter</i>	1 80

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West's Grammar	\$0 50
Alexander's Anthology	50
Carpenter's Rhetoric	60
Soil— <i>King</i>	75
Elementary Chemistry	1 00
H. S. Botany	1 00
Poultry Craft	1 50
Canadian Dairying	1 00
Soils and Crops	1 00
Testing Milk	1 00
H. S. Book-keeping	60

A complete stock of 2nd, 3rd and 4th year Text Books always on hand.

Fountain Pens, Note Books, Scribblers, etc. Try our \$1.00 Fountain Pens.

McKEE'S BOOK STORE

Central Book Store

Opposite where the Street Cars stop



Text Books. Exercise Books. Foolscap. Writing Pads. Up-to-date Note Papers and Envelopes, Papetries, Etc., Etc. Bibles. Hymn Books. Books by Standard Authors. Poets Prayer Books.

In fact, everything that is kept in a well-ordered Bookstore.



C. ANDERSON & CO.

ONLY
ARTISTIC
CLOTHING

IN OUR READY-TO
WEAR CLOTHING
AND FURNISHING
DEPARTMENT

THE
DOWLER CO.

**Burr &
Ainsworth**

**FURNITURE
DEALERS**

Guelph, - Ontario

**One
for
the
Boys**

94 SUIT ENDS
worth \$24 to \$30
WHILE THEY
LAST
\$18.00 to \$22.00

*Work:
High Class*

J. A. SCOTT

Maker of Men's Clothes

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GRANT & ARMSTRONG

**Furniture Dealers
and Upholsterers**

WE MAKE A SPECIALTY OF

**Repairing
Upholstered
Goods. . .**

COSY CORNERS AND SKIRT **TRY**
BOXES MADE TO ORDER. **US**

Quebec Street Phone 488

BELL *HIGH CLASS*
PIANOS
PIANO-PLAYERS, ORGANS
 MANUFACTURED BY
Bell Piano & Organ Co., Limited
 CATALOGUE FREE. GUELPH, ONTARIO

MEN'S CLOTHING
 PAR EXCELLENCE

There is no reason in the world why you should not wear the best clothing made—we sell it, and at a price no greater than some inferior kinds are sold at. There is style to our clothing—there's wear and there's value—what more can you ask? You cannot get more than we give for the money—anywhere.

Do you realize that we also sell the best lines of furnishings you have access to? This is news to scores of men in this vicinity—good news, and if they will, they can profit by it. Just come and see.

D. E. Macdonald & Bros.
 5 and 7 Lower Wyndham. 56 McDonnell St.
 3 Entrances

**Lowney's
 Chocolates**

When you eat Chocolates you want to enjoy the best obtainable. Lowney's goods have a world-wide reputation, and are always to be relied upon. J. A. McCREA & SON can supply you. Let us have your order when getting up those little "Suppers."

J. A. McCrea & Son
 Two Stores :
 Wyndham St. and Elora Road

STALL No. 3, GUELPH MARKET

ALFRED HALES

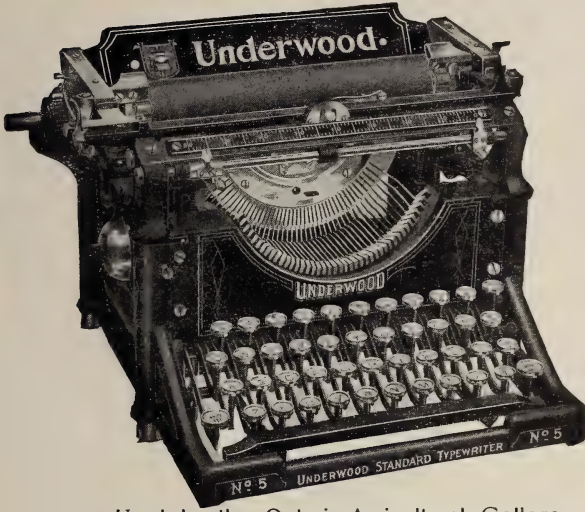
Wholesale and Retail Dealers in

**Fresh Meats, Pickled Beef and Tongues,
 Poultry for the Students a Specialty,
 Fresh Pork, Hams, Bacon, Lard,
 Sausages and Bologna**

Shop—Telephone 191 **Residence—Telephone 405**

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UNDERWOOD
VISIBLE TYPEWRITERS



Used by the Ontario Agricultural College
All Makes of Rebuilt Typewriters
Write for Price List.

UNITED TYPEWRITER Co., LIMITED
TORONTO, ONT.

New Oak Hall Store

MR. O. A. C. MAN!

We keep a Practical Tailor to do your Pressing and repairing. Monthly contracts taken. All goods called for and delivered. A post card to Box 807 will bring our boy for your parcel.

CUMMING'S
OAK HALL STORE.

Guelph's Leading House

For Stoves of every Description.
Sheet Metal Workers, Kitchen
and Dairy Supplies. Expert
Heating Contractors.

H. OCCOMORE & CO.
86 Upper Wyndham St., Guelph

THE
**Electric Boiler
Compound Co., Ltd.**

PHONE 396, BOX 409, GUELPH, ONTARIO

**Walker's Electric
Boiler Compound**

High Grade Lubricating Oils, Greases Pack-
ings, Belt Lacings, Flue Scrapers, Etc.

Crystal Cream Separator Oil
A SPECIALTY

THE
PRINGLE JEWELER

Entomological Supplies,
Magnifying Glasses, all qualities,
Fountain Pens,
Rubber Stamps,
O. A. C. and Macdonald Institute
College Pins

Horse-Power Spramotor

Will pay for itself the first season in removing wild mustard from your fields.

Automatic in action throughout; everything under control of driver without stopping.

Machine automatically stops at 125 lbs. pressure, starting again at 100 lbs.

Tell us your needs. You will get expert advice.

Our 86-page Treatise D free. Agents wanted.

SPRAMOTOR CO.,
BUFFALO, N.Y. LONDON, CAN.

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FOSTER AND FOSTER

DENTISTS

Office and Surgery :

Corner Wyndham and Macdonnell Sts.
(OVER DOMINION BANK)

Residence—"Sunset," Paisley Street

TELEPHONE 14

W. J. STEVENSON ANDREW MALCOLM
PHONE 143

STEVENSON & MALCOLM CO.

Late Members of
THE BENNETT & WRIGHT CO., LIMITED, TORONTO

CONTRACTORS

For Steam and Hot Water Heating,
Ventilation and Hydraulic Engineering,
Plumbing and Gas Fitting,
Specialties in Sanitary Appliances.

Upper Wyndham Street, Guelph, Ont.

THE TYSONS

WHOLESALE AND RETAIL

Butchers and Cattle Dealers

J. & A. TYSON

No. 1 Stall, Guelph Market
'Phone 78

TYSON BROS.

Shop Cor. Green and Norfolk Streets
'Phone 152

JACKSON & SON

GROCERS

FIRST-CLASS FANCY GROCERIES
IN ALL LINES

17 Lower Wyndham Street

TELEPHONE 112 Established 40 Years

THE
RED
CROSS

PHARMACY

J. B. BROADFOOT

ST. GEORGE'S
SQUARE
GUELPH

2 NEW LINES

College Folder

and

"Chic" Folder

BOOTH,

Photographer

NEILL THE SHOE MAN

SOLE AGENT FOR

THE

SLATER SHOE

GUELPH, - ONTARIO

G. A. C. STUDENTS

Like Smart Shoe Styles
So do the Macdonald Girls
We lead in the Newest
Footwear.

W. McLaren & Co.

'PHONE 370

South-west Corner from the Post Office

Please mention the O. A. C. REVIEW when answering advertisements.

Thornton & Douglas

LIMITED

Makers and Importers of Wearing Apparel for Men and Boys

Dairy Suits
a Specialty

Stratford, Chatham,
Guelph

HEADQUARTERS

FOR HARDWARE AND
SPORTING GOODS
AT LOWEST PRICES

G. A. RICHARDSON

Upper Wyndham Street, - GUELPH

GUELPH AND ONTARIO INVESTMENT AND SAVINGS SOCIETY

SAVINGS BANK DEPARTMENT

Deposits of \$1.00 and upwards taken.
Highest current rates allowed.

J. E. McELDERRY, Sec - Treas

EYES TESTED

BY AN EXPERT OPTICIAN
(No Charge)

SAVAGE & CO.
OPTICIANS

JAMES LAW
UPPER WYNDHAM STREET

Manufacturer of all kinds of

UNDERWEAR, JERSEYS, HOSE, ETC.

NEAR GEMMELL'S DYE WORKS

FOOTBALL and HOCKEY GOODS

Made to Order in College Colors

Bicycle Stockings

STUDENTS

When You Want Material to
Smoke or Chew, Call at the

Senate Cigar Store

You find everything you want there

McHUGH BROS. 26 Lower Wyndham

GEO. HARPER

Picture Frames
QUEBEC STREET
NEAR CHALMERS' CHURCH

T. H. GEMMELL & CO.

Steam Dyers and Cleaners

No. 70 Wyndham St., West Side

Suits Cleaned, Dyed and Pressed.
Pressing Done on Shortest Notice.

Also Agents for Parisian Laundry. PHONE 69

— TRY — BURGESS FOR GROUPS

There's as much difference in Barbers
as in any other Tradesmen.

The Royal Opera House Barber Shop

Is the place to get the finest work in Guelph,
and when the best can be had at the same price
as inferior—Why not have the best?

DR. COGHLAN DENTIST

Cor. Cardigan and Woolwich Streets

TELEPHONE 223

A CHOICE STOCK OF FOOTWEAR FOR LADIES AND GENTLEMEN

And a RELIABLE
Repair Department

W. C GOETZ, UPPER WYNDHAM STREET
Opposite G. B. Ryan & Co.

W. A. CLARK

Watchmaker
Jeweler and Optician

79 Upper Wyndham St., Guelph

Issuer of Marriage Licenses

WATERS BROS.

Wyndham Street

O. A. C.
SUPPLIES

Best For Cheese Making.

Pure, uniform crystal. Dissolves slowly. Stays in the curd—not carried away in the whey. Makes a smooth, firm, delicious cheese that keeps perfectly.

**Windsor
SALT**

* Salting the curd is the most important part of cheese making. Start right, with Windsor Salt.

Your dealer has WINDSOR SALT, or will get it for you.

**CANADIAN
OFFICE & SCHOOL
FURNITURE
CO. LIMITED
PRESTON, ONT**



**OFFICE,
SCHOOL,
CHURCH,
& LODGE
FURNITURE**



FINE BANK, OFFICE, COURT HOUSE AND
DRUG STORE FITTINGS A SPECIALTY

SEND FOR CATALOGUE

Dominion Bank

GUELPH



Capital Paid Up - - \$3,000,000

Reserve Fund and Undivided Profits \$3,565,000

A General Banking Business Transacted.

Savings Bank Department in connection with all Offices of the Bank.

Deposits of \$1.00 and upwards received.

BANKERS FOR THE O. A. C.



Manager Guelph Branch

H. C. SCHOLFIELD

The Busy Bookstore

26 Lower Wyndham Street



City Headquarters for
O. A. C. Students' Supplies

College Text Books

Fine Stationery, Etc.

And for those who are planning for a gift for the folks at home, we are opening up and showing the finest range of goods in the city.

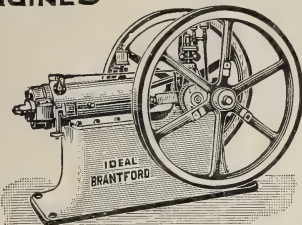


Scott & Tierney

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AS AND DEAL ASOLINE ENGINES

BRANTFORD ENGINES.
STRICTLY HIGH GRADE.
2 to 25 H.P.



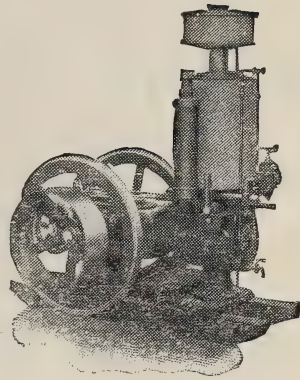
IDEAL BRANTFORD

The Perfected Product of Many Years' Experience.

Also Makers of Steel Windmills and Water-works Outfits, Etc.

WRITE US.

GOLD SHAPLEY & MUIR CO. LIMITED
BRANTFORD, CAN.



Stickney Gasoline Engines.

Embodies **Simplicity, Economy and Power.**

We guarantee to develop power stated.

YOUR BOY CAN RUN IT

No complicated parts to get out of order, and expensive to replace.

Sizes: 2½, 4½, 6, 9, 12 and 15 H. P.

Windmills, Grinders, Tanks, Pumps, Water-Basins

OUR GOODS SAVE MONEY

Ontario Wind Engine & Pump Co.

Limited, - TORONTO.

We have a very complete stock

—OF—

Entomological

—AND—

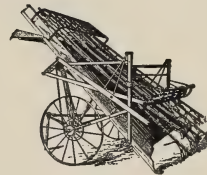
Botanical Supplies

For Students. At Student's Prices.

ALEX. STEWART,

Chemist, - Next Post Office.

THE DAIN Hay Loader



The machine that does the good work. Loads out of the **swath** or **windrow**.

No weight to lift in attaching to the wagon.

Pushes the hay forward on the wagon.

The **one-man machine**.

Send for circular.

The Dain Manufacturing Co.

Preston, Ontario

Please mention the O. A. C. REVIEW when answering advertisements.

Foreign Advertisers

in the O. A. C. Review

should seriously consider whether they can refrain from advertising in

The Guelph Weekly Mercury

The Weekly Mercury was established 1854, and had a sworn circulation last year of 4,844 copies per issue. Its clientele embraces the most progressive farmers and stock breeders in one of the oldest and best agricultural sections in Canada.

An advertisement in the Weekly Mercury always brings paying results.

J. J. McIntosh

Education Department Calendar for 1905

(IN PART.)

AUGUST:

1. Notice by Trustees to Municipal Councils respecting indigent children, due.
Estimates from School Boards to Municipal Councils for assessment for School purposes, due.
High School Trustees to certify to County Treasurers, the amount collected from county pupils.
21. Rural, Public and Separate Schools open.
25. Applications for admission to County Model Schools to Inspectors, due.

SEPTEMBER:

1. Last day for receiving applications for admission to the Ontario Normal College.
High Schools first term, and Pub-

lic and Separate Schools in cities, towns and incorporated villages open.

4. LABOR DAY.
5. County Model Schools open.
12. Provincial Normal Schools open. (First term.)
30. Notice by Trustees of cities, towns, incorporated villages and township Boards to Municipal Clerks to hold Trustee elections on same day as Municipal elections, due

OCTOBER:

2. Ontario Normal College opens.
Night Schools open (session 1905-1906.)

NOVEMBER:

9. KING'S BIRTHDAY.

For Examination Papers of the Education Department address orders direct to the Carswell Co., Limited, Law Publishers, etc., 30 Adelaide St. East, Toronto.

Please mention the O. A. C. REVIEW when answering advertisements.



Reproduced Photograph of J. W. Young's Barn,
Ryckman's Corners, Ont.

A Paroid Roof

The roof that lasts and anybody can lay. Thousands of the most progressive farmers, dairymen and poultrymen, as well as railroad companies and the U. S. Government are using Paroid for roofing and siding in preference to all others, because they have PROVED that Paroid is

**The Most Economical
The Most Durable
The Most Satisfactory** } **of all Ready Roofings**

This is why: It is made of extra strong felt, with an extra good saturation which makes it proof against sparks, cinders, water, heat, cold, acids and gases. Light slate color; contains no tar; does not run nor crack and does not taint rain water. Don't be put off with a cheap imitation. Get the economical Paroid—the roof that lasts. **SEND FOR FREE SAMPLE** and name of nearest dealer. Investigate for yourself. For a 2 cent stamp we'll send new book of complete plans for poultry and farm buildings.

F. W. Bird & Son,

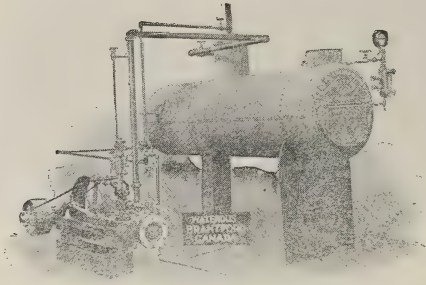
Makers

Hamilton, Ontario

(Originators of the free Roofing Kit—fixtures for applying in every roll),
Established 1817 in U. S.



Our Dairy Ourfit



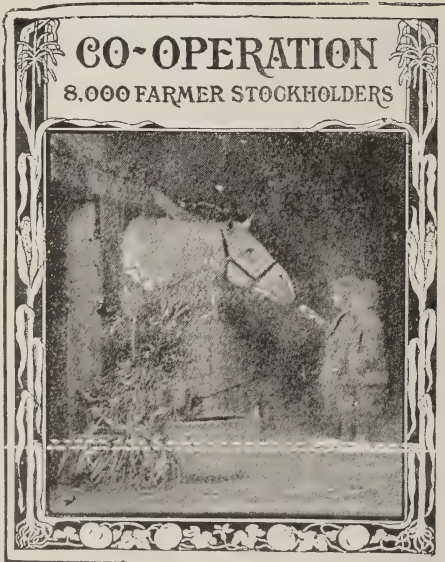
MOST COMPLETE IN EVERY DETAIL

Waterous Engine Works Co.

Brantford, Canada

Also manufacturers of Saw Mill and Pulp Machinery,
High Speed Automatic Engines, Boilers, etc.

Estimates and Prices furnished on application.



CO-OPERATION
8,000 FARMER STOCKHOLDERS

Farmers' Binder Twine Co.

Limited

8,000 Small Shareholders

Have we a farmer agent in your locality? If not please name a good man immediately. Buying Binder Twine from our opponent means driving nails into your own coffins.

~ JOSEPH STRATFORD,
~ General Manager. ~
Brantford

Please mention the O. A. C. REVIEW when answering advertisements.

AMERICAN-ABELL
Engine and Thresher Co.
LIMITED

MANUFACTURERS OF THE
"COCK O' THE NORTH" LINE
OF THRESHING MACHINERY



FACTORY:

TORONTO - CANADA



BRANCH SALE HOUSES AT
WINNIPEG and REGINA

Farmers and Threshermen

Only 2 months left before threshing starts.

ARE YOU READY ?

1906 has opened with a rush for

"WHITE" FIRST QUALITY GOODS

Our factory is running day and night.

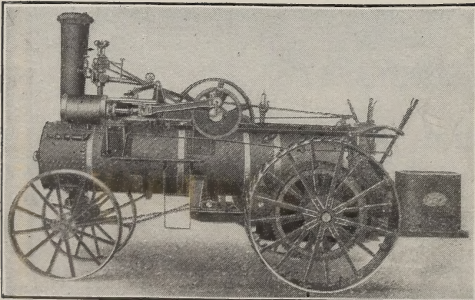
WE ARE PREPARED FOR YOU

COME ON!

The George White & Sons Co.

London, Ontario

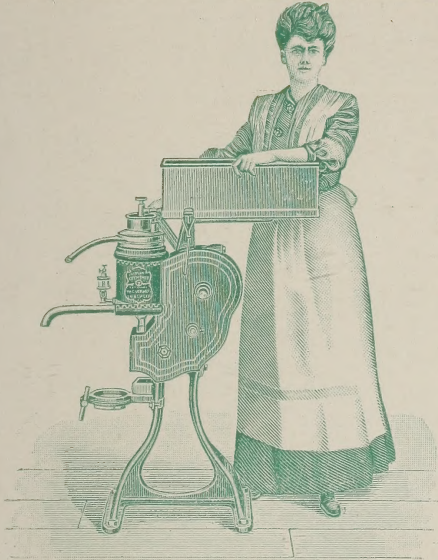
Limited



Please mention the O. A. C. REVIEW when answering advertisements.

FOUR CENTS MORE

For No. 1 Cream than for No. 2



The creameries of the country have become so convinced of the increased value of thick cream over thin cream that many of them are paying a premium on cream containing 30 per cent or more butter fat over that containing under 30 per cent.

One of the largest buyers of cream in the West, the Hanford Produce Co. of Sioux City, Iowa, issued this year the following statement to its cream shippers.

"We are going to offer a premium of **4 cents per pound** butter fat for what we term No. 1 Cream.

FIRST GRADE cream shall consist of all hand separator cream which is delivered at least twice a week in winter and three times per week in summer, this cream to be delivered reasonably sweet and testing **30 per cent or more.**

SECOND GRADE cream shall consist of all hand separator cream delivered in good condition not less than once a week or testing **less than 30 per cent.**

Under these conditions creamery patrons should buy only the Cream Separator that can skim a heavy cream. The

United States Cream Separator

can skim a heavier cream than any other and do it **without clogging.** The U. S. has the record of skimming a cream testing **65 per cent.** And remember also that the U. S. holds the World's Record for clean skimming.

It gets the most cream and will deliver as heavy a cream as you want.

Write for a copy of our fine new 1906 Separator Catalogue No. 143. It tells **why** the U. S. can skim the **first-grade** cream; how it made the world's record for clean skimming, and many other things you should **know** before you put any money into a cream separator. Write for a copy to-day—do it **now** while you think of it, addressing

Vermont Farm Machine Company

Bellows Falls, Vt.

We probably have a selling agent in your vicinity, and if so, will give you his name when we send you the catalogue. It is his business to show you a United States Separator if you want to see one.

WHY YOU SHOULD BUY A DE LAVAL Cream Separator

Because —It will save you at least \$10.00 to \$15.00 per cow every year of use over any gravity setting or skimming process, and last you at least twenty years.

Because —It will save you at least \$5.00 per cow every year of use over any imitating cream separator, and last you from five to ten times as long.

Because —In proportion to actual capacity and durability it is not only the best but also the cheapest of cream separators, and saves its cost the first year of use.

Because —It can be bought either for cash or on such liberal terms that it actually pays for itself.

Because —Being the first of separators it has always kept far in the lead, being protected by one important patent after another, and its sales are ten times those of all other machines combined.

A new DE LAVAL catalogue explaining these facts and many others in detail is to be had for the asking.

The De Laval Separator Co.

Winnipeg

77 YORK ST., TORONTO

Montreal